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REPORT OF WASTE SOURCE INVENTORY AND EVALUATION, DADE COUNTY, FLORIDA

ENVIRONMENTAL PROTECTION AGENCY

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REPORT OF
WASTE SOURCE INVENTORY
AND EVALUATION
DADE COUNTY, FLORIDA

Environmental Protection Agency
Southeast Region
Southeast Water Laboratory
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Athens, Georgia
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TABLE OF CONTENTS

	Page No.
Introduction	1
Summary and Conclusion	8
Recommendations	13
Major Municipal Waste Sources	15
Minor Municipal Waste Sources	24
Industrial Waste Sources	31

LIST OF TABLES

	Following Page No.
Table 1.--Summary of Inventory Information and Abatement Needs for Major Waste Treatment Plants in Dade County, Florida	15
Table 2.--Total Loads of Pollutants Discharged by Major Municipal Waste Sources, Dade County, Florida	15
Table 3.--Summary of Inventory Information and Abatement Needs for Minor Wastewater Treatment Plants in Dade County, Florida	24
Table 4.--Significant Industrial Wastewater Sources in Dade County, Florida	31
Table 5.--Industries Currently Under Enforcement Action	35

LIST OF FIGURES

	Following Page No.
Figure 1.--Location of Major Municipal Waste Sources, Dade County, Florida	15
Figure 2.--Location of Minor Municipal Waste Sources, Dade County, Florida	24
Figure 3.--Location of Principal Industrial Waste Source Areas, Dade County, Florida	31

LIST OF APPENDICES

Appendix 1.--Average Efficiencies and Effluent Loads for Major Municipal Waste Sources, Dade County, Florida - Biochemical Oxygen Demand and Total Suspended Solids

Appendix 2.--Average Efficiencies and Effluent Load for Major Municipal Waste Sources, Dade County, Florida - Chemical Oxygen Demand and Total Organic Load

Appendix 3.--Average Efficiencies and Effluent Load for Major Municipal Waste Sources, Dade County, Florida - Volatile Suspended Solids and Settleable Solids

Appendix 4.--Average Concentrations and Effluent Load for Major Municipal Waste Sources for Dade County, Florida - Nitrogen, Phosphorus, and Chlorides

Appendix 5.--Median MPN and Average of Field Observations for Municipal Waste Sources in Dade County, Florida

Appendix 6.--Average Efficiencies and Effluent Load for Minor Wastewater Treatment Plants, Dade County, Florida - Biochemical Oxygen Demand and Total Suspended Solids

Appendix 7.--Average Efficiencies and Effluent Load for Minor Wastewater Treatment Plants, Dade County, Florida - Chemical Oxygen Demand and Total Organic Carbon

Appendix 8.--Average Efficiencies and Effluent Load for Minor Wastewater Treatment Plants, Dade County, Florida - Volatile Suspended Solids and Settleable Solids

Appendix 9.--Average Effluent Concentrations and Effluent Load for Minor Wastewater Treatment Plants, Dade County, Florida - Nitrogen and Phosphorus

Appendix 10.-Average Temperature, Chlorine Residual and Chloride Concentration for Minor Wastewater Treatment Plants in Dade County, Florida

Appendix 11.-Rule 7, Regulation of the Use of Sanitary and Storm Sewers and the Discharge of Waters and Wastes into Utilities' Sewerage Systems

INTRODUCTION

In July 1970, the Governor of Florida and the Florida Department of Air and Water Pollution Control requested assistance from the Environmental Protection Agency, Office of Water Quality (formerly Federal Water Quality Administration, USDI) in determining the water pollution abatement requirements for Dade County, Florida. A Federal-State Enforcement Conference held on October 20, 21 and 22, 1970, made the following recommendations:

1. Pollution of the navigable waters in and adjacent to Dade County, Florida, including the Atlantic Ocean, Biscayne Bay, and tributaries thereto, which endangers health and welfare of persons, is occurring and is subject to abatement under the Federal Water Pollution Control Act. This pollution is caused by discharges from numerous municipal, domestic, and industrial sources within Dade County.

2. Measures taken to abate this pollution have been inadequate.

3. The nature of delays being encountered in pollution abatement are: complexity of the problem; lack of effective planning; financing and enforcement of pollution control law; and lack of a commitment by the community to meet the pollution problem and abate it.

4. The Metropolitan Dade County Commission shall present a master plan for abatement of pollution from all sources in Dade County to the conferees, through the State of Florida, by November 1, 1971. This plan is to be in a form acceptable for certification under applicable State and Federal laws and regulations. The plan is to contain sufficient detail so that all significant sources are identified. The plan is to include a time schedule for construction with interim dates for arrangement of financing,

preparation of preliminary plans and specifications, preparation of final plans and specifications, award of contracts, and initiation and operation of remedial facilities.

5. The cessation of all waste discharges into the inland canal system of Dade County, Florida, shall be accomplished as rapidly as possible but not later than January 1, 1973.

6. A minimum of secondary treatment, providing at least 90 percent BOD removal and year-round chlorination of the effluent, shall be provided for all waste, as required by the State of Florida before discharge to the ocean, as rapidly as possible but not later than January 1, 1974.

7. All new construction shall be connected to adequate sewage collection and treatment systems. The conferees will meet not later than February 1, 1971, to consider the question of Dade County's building permit program with a view toward controlling additional pollution sources while the Dade County pollution abatement program is under design and construction. It is expected that the Dade County Metropolitan Commission will be prepared to present their action program to the conferees at that time which will satisfactorily meet this problem, including a program for the elimination of septic tanks in all urban areas of Dade County.

8. Additional waste discharges to Lower Biscayne Bay, including the Biscayne National Monument, and its tributaries shall be prohibited. This same prohibition shall apply to discharges to canals in Dade County which drain to the Everglades National Park. Removal of existing municipal and industrial waste discharges from these waters shall be accomplished as rapidly as possible but not later than January 1, 1974.

9. All wastes from vessels used as domiciles or business establishments shall be discharged to onshore facilities. The Corps of Engineers is requested to report to the conferees by February 1, 1971, on its program for removing abandoned hulks, debris, and other obstructions to navigation in the Miami River.

10. An inventory of all municipal and industrial waste sources within Dade County, Florida, shall be initiated immediately by the Federal Water Quality Administration in cooperation with the State of Florida and local officials, and a report shall be made to the conferees by April 1, 1971.

11. A technical committee comprised of the Federal Water Quality Administration, the State of Florida, and the Dade County Pollution Officer shall be established to develop, in cooperation with other Federal, State, and local agencies, a regional water quality management plan for the conservation and reuse of the waters of Dade County. This committee shall report to the conferees as to its progress and future plans by November 1, 1971.

Pursuant to Recommendation 10, an inventory and evaluation of municipal and industrial waste sources was conducted between November 28, 1970, and February 2, 1971. The present report together with Technical Appendicies are the result of that study.

A second session of the Federal-State Enforcement Conference held on February 18 and 19, 1971 made the following recommendations:

Recommendations 1, 2, 3, 5, 6, and 11 remain unchanged.

The recommendations which were modified are as follows:

4. The Metropolitan Dade County Commission's interim reports on the development of an updated master plan for Dade County to the Conferees

on February 18 and 19, 1971, indicate general progress. On April 13, 1971, the County Manager's Office will bring an interim progress report to the attention of the Conferees. A report on the upgrading and expansion of the Virginia Key Plant will also be furnished to the Conferees by April 13, 1971.

7. The Metropolitan Dade County Commission's response to Recommendation 7 concerning building and occupancy permit approval is vague and non-conclusive. To insure compliance with the recommendation, the Conferees require interim reports from the Dade County Pollution Control Officer. The first report is to be furnished by April 13, 1971, as to progress and problems in this vital area of concern and bi-monthly thereafter.

8. Additional waste discharges to Lower Biscayne Bay, including the Biscayne National Monument, and its tributaries shall be prohibited. This same prohibition shall apply to discharges to canals in Dade County which drain to the Everglades National Park. Removal of existing municipal and industrial waste discharges from these waters shall be accomplished as rapidly as possible but not later than January 1, 1974. The Conferees recognize technical problems associated with Recommendation 8. The City of Homestead should instruct its engineers to prepare feasibility studies on disposal of treated waste effluent to the subsurface through deep well injection. Other alternatives should also be considered with the Department of Air and Water Pollution Control.

The County in cooperation with the U. S. Geological Survey and the Environmental Protection Agency should actively monitor the General Waterworks deep well system at Snapper Creek Plant. The information

obtained from the operation of this deep well injection system will be of fundamental guidance to the disposal of treated wastes in Dade County and should be made available to the Conferees on a bimonthly basis beginning April 13, 1971.

9. All wastes from vessels used as domiciles or business establishments shall be discharged to onshore facilities. However, the Conferees take cognizance of the regulations controlling such discharges which are currently being developed by EPA and will modify this provision accordingly when the regulations become effective. The Corps of Engineers is requested to report to the Conferees by April 13, 1971, on its program for continuing the removal of abandoned hulks, debris, and other obstructions to navigation in the Miami River.

10. Based on the inventory completed to date, the following wastewater treatment plants must be cited as being in violation of State and County standards:

Riverdale Estates	Carol City Utilities
Andover Subdivision	Community Utilities
Doral Country Club	Atomic Sewerage
Miami Lakes Utilities	South Miami Heights
Southern Estates Utilities	Little Abner's Trailer Park
Leisure City Utilities	Pan American Hospital
Peninsular Utilities	

The Dade County Pollution Control Officer will report back to the Conferees on remedial action taken towards compliance with State and County standards by April 13, 1971. Additionally, the Water Quality Office will continue its inventory and analyses of municipal and industrial sources and will give a final report with recommendations to the Conferees on April 13, 1971.

Authority

Authority for this study is derived from Section 10 and Section 5 (b) of the Federal Water Pollution Control Act, as amended.

Acknowledgements

The active participation of Division of Field Investigations - Denver Center and Cincinnati Center; Southeast Regional Laboratory of the Florida Division of Air & Water Pollution Control; and Dade County Pollution Control is gratefully acknowledged. The Lower Florida Estuary Study Office, Ft. Lauderdale, Florida, was responsible for the project.

Explanatory Comments

The Goulds-Perrine wastewater treatment plant is under construction. It is a 2 MGD contact stabilization plant with pressure filters and phosphate removal, aerobic digester and sludge drying beds. Effluent will discharge into Black Creek.

Fair Havens, Virginia Gardens Apartments, Palmetto General Hospital, and Caravel West Apartments treatment plants began operation after the survey was completed. The treatment processes employed at these plants and other pertinent information are presented in Table 2, but inspection reports and chemical analysis could not be done.

Twelve treatment plants listed in the Supplement to Metropolitan Dade County 1961 Master Plan for Sanitary Sewage, January 15, 1971, are not included in this report for the following reason:

AeroJet General Corporation	Company closed.
Burdines, Hialeah	Waste to North Miami ocean outfall.
Coastal Towers	Waste to Miami Beach ocean outfall.

Eastern Shores	Waste to ocean outfall.
K-Mart, Hialeah	Waste to North Miami ocean outfall.
Kings Point Apartments	Waste to ocean outfall.
Lake Cecile, Hialeah	Waste to North Miami ocean outfall.
Palm Spring Shopping Center, Hialeah	Waste to North Miami ocean outfall.
Sheraton Beach Hotel	Waste to ocean outfall.
Interama	In planning stage.
Metro North Dade	In planning stage.

SUMMARY AND CONCLUSIONS

Seventy-six wastewater treatment plants were surveyed between November 28, 1970 and February 2, 1971. Analyses were performed to determine treatment efficiency, adequacy of bacterial disinfection and effluent loading. Technical Appendices I and II[1/] are the engineering and laboratory evaluations of each plant.

An industrial waste inventory located and identified the significant industrial waste sources. No samples were taken. Technical Appendix III[1/] contains the engineering evaluation reports for those industries visited.

Major Plants

Myrtle Grove, Palm Springs North Subdivision, Redlands Farm Labor Camp, Seaboard Industrial Park and South Dade Farm Labor Camp treatment plants achieved at least 90% removal efficiency for both biochemical oxygen demand (BOD) and total suspended solids (TSS).

Country Club of Miami, Atomic Sewerage, Doral Country Club, Pan American Hospital, Community Utilities and South Miami Heights treatment plants achieved 90% reduction of BOD but not total suspended solids.

Westwood Lakes Subdivision treatment plant achieved 90% reduction of total suspended solids but not BOD.

Andover, Carol City, Riverdale Estates, Golden Isles, Miami Lakes, Opa Locka Airport, Little Abner's Trailer Park, Peninsular Utilities, Southern Estates, Cutler Ridge, Bell Aire Subdivision, Homestead Air Force Base, City of Homestead, Leisure City and City

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1/ Published separately in limited edition.

of Miami (Virginia Key) did not achieve 90% reduction of either BOD or TSS.

North Miami and Miami Beach Ocean outfalls discharge 36.8 MGD into the Atlantic Ocean with only skimming to remove floatables.

Carol City, Myrtle Grove and Miami Lakes plants, handling 4.04 MGD with a reduction of 85.5% BOD and 79.6% TSS are to be abandoned, and their raw waste (7,619 lbs/day BOD and 8,920 lbs/day TSS) discharged into the Atlantic Ocean through the North Miami outfall.

Minor Plants

Food Fair Stores #291, Hialeah Hospital, Airport Lanes, Howard Johnson, My-Am-E Trailer Park, Jade Garden Apartments, Camp Matecumbe, Casa Granda Apartments, El Rancho Apartments, Redlands Mobile Home Park and Steak & Brew Restaurant treatment plants provide 90% reduction of both BOD and TSS for a total flow of 0.276 MGD.

Coast Guard Station, Del Ray Gardens, Hialeah City Hall, Holiday Inn, Midway Mall, Air Traffic Control, Blue Lake Trailer Park, Medley Mobile Park, 79th Street Shopping Center, American Hospital Supply, Country Club Gardens, Westchester Hospital, Goldberg Apartments, Ludlum Plaza Apartments, Kendale Lakes and Helman Court Apartments treatment plants provide 90% reduction of BOD but not TSS for a total flow of 0.354 MGD.

Palm Springs Hospital and Florida Portland Cement treatment plants provide 90% reduction of TSS but not BOD for a total flow of 0.019 MGD.

Shores Condominium, Dade Christian School, Barry College, Monsignor Pace High School, Palm Springs Gardens Condominium, Hialeah Convalescent Home, Kings Inn, Saratoga Springs Apartments, Queen's Inn, Miami Springs High School, Biltmore Hotel, Miller Lake Apartments, Lakeview Garden Apartments, Kendale Complex, Naval Air Station, Sweden House

Restaurant and Sea Glades Motel do not provide 90% reduction of either BOD or TSS. Total flow is 0.246 MGD.

Minor treatment plants handle less than 1% of Dade County's sewage flow. Only 22 minor plants have licensed operators or are operated by licensed consultants. Most minor plants have some operational difficulty which contributes to poor treatment efficiency. Small plants require a disproportionally large amount of labor and maintenance.

Major and minor wastewater treatment plants contribute the following waste loads to the waters of Dade County:

* Snake Creek Canal drainage area: 1,622 lbs/day BOD, 1,616 lbs/day TSS, 7.04 MGD.
* Biscayne Canal and Little River drainage area: 366 lbs/day BOD, 407 lbs/day TSS, 1.142 MGD.
* Miami River drainage area: 155 lbs/day BOD, 292 lbs/day TSS, 0.69 MGD.
* Coral Gables Waterway drainage area: 267 lbs/day BOD, 588 lbs/day TSS, 2.62 MGD.
* Snapper Creek Canal drainage area: 1,824 lbs/day BOD, 2,303 lbs/day TSS, 5.986 MGD.
* Black Creek Canal drainage area: 862 lbs/day BOD, 2,270 lbs/day TSS, 3.53 MGD.
* South Bay Area drainage area: 586 lbs/day BOD, 989 lbs/day TSS, 3.21 MGD.
* Atlantic Ocean or Biscayne Bay drainage area: 54,175 lbs/day BOD, 48,588 lbs/day TSS, 77.1 MGD.

Industrial Waste Sources

An initial list of over 1,800 industries was systematically

reviewed and evaluated. No industrial discharges were sampled. Rather, a list of the 89 most significant industrial waste sources was compiled and reports were prepared as a guide to further work.

Fifteen industries discharge to surface waters, 36 to ground water and 38 to municipal sewer systems.

Industrial discharges to ground and surface water in and adjacent to the Hialeah-Miami Springs well field contains toxic substances, heavy metals, oil and petroleum derivatives, acids, alkalies, suspended solids and oxygen demanding materials.

Rule 7 of the Dade County Commission provides for the control of industrial waste discharges into municipal sewer systems.

Conclusions based on the findings of this study are:

1. Municipal wastes are contaminating the waters of Dade County.
2. Twenty one percent ~~(21%)~~ of the municipal waste volume from Dade County receives inadequate treatment and ~~77%~~ receives no treatment.
3. Small plants require disproportionally high labor and maintenance and in that respect are less efficient than larger conventional treatment plants.
4. Closing Carol City, Myrtle Grove and Miami Lakes plants without providing alternative treatment will increase the overall waste discharge load.
5. Industrial waste discharges are contaminating the waters of Dade County.
6. Industrial wastes may be contaminating the Miami Springs-Hialeah well field.
7. Industrial wastes may have a detrimental effect on the per mance of sewage treatment systems.

8. Further study of industrial waste sources is needed to determine the full extent and nature of pollution from these sources.*

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* Industrial waste survey completed in June 1971.

RECOMMENDATIONS

In addition to recommendations made at previous conferences, it is further recommended that:

1. By January 1, 1974, a regional collection and treatment system to serve all waste sources in Dade County be in operation to ensure secondary treatment of all wastes, with removal efficiencies of not less than 90 percent, and with discharge of treated effluents to the Atlantic Ocean, at the edge of the Gulf Stream.

2. Environmental Protection Agency make a study of existing ocean outfalls and the coastal zone with a view toward recommending more detailed ocean disposal criteria. Preliminary disposal guidelines are to be reported to the Conferees by July 1, 1972.

3. Notwithstanding recommendation 1 above, no existing treatment facility should be abandoned when such action will result in a lower overall treatment efficiency. Rather the treated effluent should be discharged to the ocean outfall system until an adequate regional treatment system is provided.

4. All wastes being discharged through North Miami and Miami Beach ocean outfalls be given secondary treatment with removal efficiencies of not less than 90 percent by January 1, 1974.

5. The City of Miami, Virginia Key plant be upgraded to provide a BOD_5 and total suspended solids removal efficiency of 90 percent. The plant be expanded to provide additional flow capacity, and the existing ocean outfall be extended to the edge of the Gulf Stream.

6. Minor plants which will remain in operation until recommendation #1 is accomplished be required to:

a) Provide for leveling peak flows,

b) Provide multiple level digestion outlets,

c) Provide drains on all tanks to facilitate cleaning,

d) Provide and maintain reliable chlorine dosing equipment,

e) Provide and maintain flow meters,

f) Prohibit submersible pumps for feeding pressure filters,

g) Have licensed operators or be operated by licensed consultants, and

h) Collect and report operational data to the Florida Department of Air and Water Pollution Control.

MAJOR MUNICIPAL WASTE SOURCES

Twenty-seven major municipal wastewater treatment plants and two ocean outfalls were surveyed between November 28, 1970 and February 2, 1971. The location of each facility is shown in Figure 1. Twenty four-hour composite samples were collected from influent and effluent, each facility using automatic samplers. Laboratory analyses were conducted on influent and effluent for 5-day biochemical oxygen demand (BOD_5), chemical oxygen demand (COD), total suspended solids (TSS), volatile suspended solids (VSS), total organic carbon (TOC), and settleable solids (SS). In addition, effluent samples were analyzed for nitrogen compounds, total phosphorus, and chlorides. Daily grab samples of the effluent after chlorination were analyzed for chlorine residual, pH, and total coliform bacteria and fecal coliform bacteria. Temperature and pH were measured in the field.

An inventory of major municipal wastewater sources is given in Table 1. Design information was obtained from the plant management, and, where possible, laboratory results were discussed with plant operators. Evaluation reports for each major waste source are included in Technical Appendix I. (Separate publication)

Five plants were operating satisfactorily. Six plants were hydraulically overloaded, but removal efficiencies were affected in only three of these plants. Flow meters malfunctioned in six plants; seven did not provide adequate chlorination; five require additions to or enlargement of treatment facilities.

Tables A-1 through A-5 provide detailed information on average influent and effluent concentrations, removal efficiencies, and effluent loads for the various parameters. Table 2 is a summary of discharged loads for each drainage basin. A discussion of significant problems associated with the individual waste sources in each drainage area, follows:

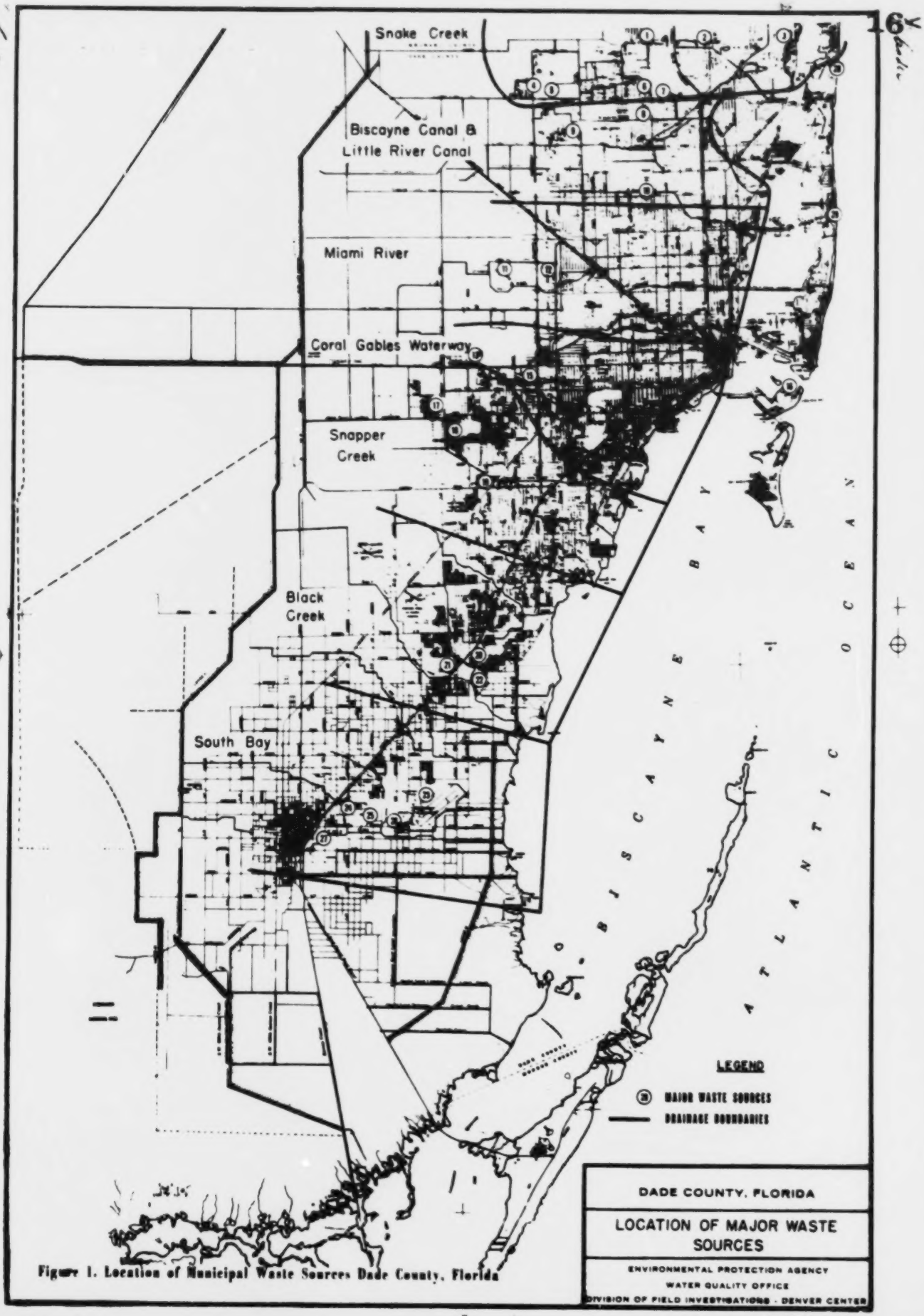


Figure 1. Location of Municipal Waste Sources Dade County, Florida

Table 1.--Summary of Inventory Information and Abatement Needs for Major Waste Treatment Plants in Dade County, Florida

Map Key[1]	Name of Source and Address	Actual Flow Design	Actual Flow Actual	Population Served	Removal Efficiency % BOD	Type of Treatment[2]	Effluent Discharged to	Remarks and Abatement Needs
	Snake Creek Drainage							
2	Andover NW 2nd Ave. and 200th St.	1.700	1.714	8,600	84.0	Comm., comp. mix act. sludge, microstrainer, 2-stage aerobic digestor, sludge dewater	Snake Creek	Correction of flow meter.
6	Carol City 3801 NW 131st St.	3.500	2.030	17,000	82.5	Comm., pri. clar., comp. mix act. sludge 2-stage aerobic digestor, liquid sludge disposal	Carol City Canal	Plant scheduled to be abandoned during 1971.
1	Riverdale Estates 3150 NW 200th Terrace	0.875	0.362	3,500	35.6	Comm., comp. mix act. sludge, aerobic digestor liquid sludge, disposal	Snake Creek	Additional treatment facilities.
3	Golden Isles 2459 NE 204th St.	0.500	0.642	6,000	82.4	Prechlorination, cont. stab., reaeration, (diffused air) 2-stage aerobic digestor, sludge drying	Oleta River	Enlargement of facilities, additional facilities, improved chlorination.
7	Myrtle Grove - City of N. Miami Beach NW 179 St. and NW 21st	4.000	1.645	21,000	91.8	Grit chamber, pri. clar., comp. mix act. sludge, anaerobic digestor, liquid sludge disposal	Carol City Canal B	Plant scheduled to be abandoned during 1971.
5	Country Club of Miami 6801 NW 186th St.	0.200	0.185	2,000	94.5	Bar screening, cont. stab., reaeretion (diffused air), 2-stage aerobic digestor, liquid sludge	77th Ave. Canal	Improved lagoon maintenance.
4	Palm Springs North S.D. 7500 NW 178th St.	0.750	0.447	6,000	92.8	Bar screen, pri. clar., act. sludge (diffused air), Jetflo system, anaerobic digestor, sludge drying beds	77th Ave. Canal	None

Table 1.--Summary of Inventory Information and Abatement Needs for Major Waste Treatment Plants in Dade County, Florida--Continued

Map Key[1]	Name of Source and Address	Actual Flow Design	Actual Flow Actual	Population Served	Removal Efficiency % BOD	Type of Treatment[2]	Effluent Discharged to	Remarks and Abatement Needs
	Biscayne Canal and Little River Canal Drainage							
9	Miami Lakes Utilities 14045 NW 67th Ave.	0.950	0.727	1,330	79.8	Comm., diffused air, reaeration, aerobic digestor, sludge disposal	138th Street Canal	Plant scheduled to be abandoned during 1971.
10	Seaboard Industrial Park NW 112th St. and 36th Ave.	0.174	0.117	NA[3]	95.0	Bar screen, comp. mix. act sludge aerobic digestor, sludge drying beds	Little River Canal	None.
8	Opa Locka Airport - Dade County Port Authority	1.500	.133	NA[3]	82.0	Bar screen, pri. clar., trick filter, aerobic digestor, sludge drying beds	Biscayne Canal	Improved chlorination, improved lift stations.
	Miami River Drainage							
12	Atomic Sewerage 6900 NW 58th St.	0.072	0.024	NA[3]	89.9	Surge tank, pri. clar., diffused air, 3-cell. oxid. lagoon, anaerobic digestor, sludge drying beds	F.E.C. Canal	None.
11	Coral Country Club NW 50th St. and 92nd Ave.	0.170	0.215	1,500	90.1	Diffused air, reaeration, aerobic digestor, sludge drying beds	Dressels Dairy Canal	Addition of flow meter, improved chlorination, operator training, improved laboratory.
	Coral Gables Waterway							
13	Lil' Abner Trailer Park 11105 N. Flagler St.	0.150	0.072	1,000	84.1	Comm., diffused air, reaeration, oxid. lagoon, aerobic digestor, liquid sludge disposal		Improved laboratory, operator training.
14	Pan American Hospital 5.50 NW 7th St.	0.030	0.030	NA[3]	97.8	Surge tank, diffused air, equal. tank, Jetflo system, liquid sludge disposal	Tamiami Canal	Additional treatment facilities.

Table 1.--Summary of Inventory Information and Abatement Needs for Major Waste Treatment Plants in Dade County, Florida--Continued

Map Key[1]	Name of Source and Address	Actual Flow Design	Actual Flow Actual	Population served	Removal Efficiency % BOD	Type of Treatment[2]	Effluent Discharged to	Remarks and Abatement Needs
15	Community Utilities 7811 SW 23rd St.	2.050	2.471	21,800	94.4	Pri. clar., comp. mix act. sludge, liquid sludge disposal	Feeder Canal to Coral Gables Waterway	Plant scheduled to be abandoned during 1971.
	Snapper Creek Drainage							
19	Peninsular Utilities SW 97th Ave. and Kendall Dr.	3.000	2.500	25,700	89.5	Comm., pri. clar., comp. mix act. sludge, sludge thick. tank, 2-stage aerobic digestor, liquid sludge disposal	Snapper Creek	None.
17	Southern Estates 11955 SW 34th St.	1.050	1.428	2,500	76.1	Comm., comp. mix act. sludge, 30% to clar., trick. filter aerobic digestor, sludge drying beds	Feeder Canal to Snapper Creek	Elimination of infiltration
18	Westwood Lakes 4801 SW 117th Ave.	2.6	1.970	22,700	74.0	1. pri. clar., trick. filt. 2. Comp. mix act. sludge, stabilization tank, 2-stage aerobic, liquid sludge disposal	Snapper Creek	Improved operation.
	Black Creek Drainage							
21	South Miami Heights SW 117th Ave. and U.S. Hwy. 1	1.750	1.089	13,000	92.2	Comm., pri. clar., diffused air, 2-stage aerobic digestor, liquid sludge removal	Feeder Canal to Black Creek	Additional flow meter, outfall modification.
22	Cutler Ridge Anchor Road and Puerto Rico Terrace	4.000	2.195	20,000	86.5	Comp. mix act. sludge, 2-stage aerobic digestor sludge drying beds	Bell-Aire Canal	Improved chlorination
20	Bell-Aire S.D. Quail Roost and U.S. Hwy. 1	0.525	0.423	5,000	77.8	Comm., grit chamber, pri. clar. tick. filter, microstrainer, sand filter, aerobic digestor, liquid sludge disposal	Bell-Aire Canal and subsurface	Improved chlorination.

Table 1.--Summary of Inventory Information and Abatement Needs for Major Waste Treatment Plants in Dade County, Florida--Continued

Map Key[1]	Name of Source and Address	Actual Flow Design	Actual Flow Actual	Population served	Removal Efficiency % BOD	Type of Treatment[2]	Effluent Discharged to	Remarks and Abatement Needs
	South Bay Drainage							
23	Homestead Air Force Base Homestead Air Force Base	1.150	2.116	2,000	63.7	Pri. clar., trick. filt., anaerobic digestor, sludge drying beds	Military Canal	Elimination of infiltration, operator training, improved laboratory support, additional treatment facilities.
27	City of Homestead SW 328th St. and U.S. Hwy. 1	1.950	0.393	10,000	82.7	1. Pri. clar., trick. filt. 2. Diffused air, anaerobic, aerobic digestors, sludge drying beds	C-103 Canal	Calibration of flow measuring device.
26	South Dade Labor Corp. SW 312th St. and SW 147th Ave.	0.100	0.126	1,350	93.9	Imhoff tank, trick. filter, microstrainer	Feeder Canal to C-103 Canal	Flow meter modification laboratory facilities, improved chlorination, operator training. Plant design review.
24	Redlands Labor Camp 29355 S. Federal Hwy.	0.100	0.057	1,250	90.6	Imhoff tank, trick. filter, microstrainer	Subsurface	Repositioning of flow meter, laboratory facilities, improved chlorination, operator training plant design review.
25	Leisure City Kings Hwy. and Naraja Road	0.630	0.296	9,000	86.8	Comm., mech. aeration, re-aeration, sand filters, 2-stage aerobic digestor sludge drying beds	Subsurface	Improved operation.
	Atlantic Ocean							
16	Virginia Key-City of Miami Virginia Key	47.00	43.30	500,000	79.3	Aerated grit chamber, diffused air high-rate act. sludge, sludge drying beds	Biscayne Bay	Additional treatment facilities, improved chlorination. Additional treatment.

Table 1.--Summary of Inventory Information and Abatement Needs for Major Waste Treatment Plants in Dade County, Florida--Continued

Map Key[1]	Name of Source and Address	Actual Flow Design	Actual Flow Actual	Population Served	Removal Efficiency % BOD	Type of Treatment[2]	Effluent Discharged to	Remarks and Abatement Needs
28	North Miami	-	-	-	-	Preliminary Treatment[4]	Atlantic Ocean	Additional Treatment
29	Miami Beach	-	-	-	-	Preliminary Treatment[4]	Atlantic Ocean	Additional Treatment
	Sunny Isles[5]	-	-	-	-	Preliminary Treatment[4]	Atlantic Ocean	Additional Treatment

1/ Refers to numbered locations shown in Figure 1.
2/ Includes secondary clarification and disinfection.
3/ Not applicable.
4/ Preliminary Treatment consists of skimming floatable solids in a primary clarifier. The settled sludge is recombined with the supernatant.
5/ Discharges through North Miami outfall.

Table 2.--Total Loads of Pollutants Discharged by Major Municipal Waste Sources, Dade County, Florida

Drainage System	Number of plants	Flow MGD	BOD lb/day	COD lb/day	TSS lb/day	VSS lb/day	TOC lb/day	Kjeldahl N lb/day	Ammonia N as N lb/day	Organic N as N lb/day	NO_2+NO_3 as N lb/day	Total P lb/day
Snake Creek Drainage	7	7.025	1,553	5,722	1,615	1,868	1,708	1,060	884	176	227	582
Biscayne Canal and Little River Drainage	3	1.027	344	2,629	366	214	461	119	92	29	48	101
Miami River Drainage	2	.239	75	416	135	101	114	23	11	12	3	15
Coral Gables Waterway	3	2.579	264	1,270	571	454	352	331	312	20	94	159
Snapper Creek Drainage	3	5.898	1,814	5,610	2,291	1,947	1,723	1,001	856	150	14	493
Black Creek Drainage[1/]	3	3.453	857	2,287	2,264	1,993	860	408	327	81	29	322
South Bay Drainage[1/]	3	3.135	575	1,998	948	403	632	178	125	52	163	219
Atlantic Ocean	3	77.100	54,164	220,441	48,561	54,558	35,402	13,105	9,263	3,842	32	5,108

1/ does not include plants discharging to ground water.

Snake Creek Drainage

The Andover wastewater treatment plant provided 84% reduction of BOD_5 and 83 % reduction of total suspended solids. This plant is hydraulically overloaded at peak flows because of infiltration in the collection system. Scum and heavy foam from the aerators are carried over into the microstrainer. Laboratory results vary widely, indicating inconsistent operation.

Daily BOD removal efficiencies at the Carol City wastewater treatment plant varied from 73.5 % to greater than 97.3 %, and suspended solids removal efficiencies varied from 61.3 % to 91.5%. Standard procedure was to operate only three of four mechanical aerators in each aeration tank. Chlorination of the influent was practiced during part of the survey. Analysis by plant personnel indicated inadequate aeration when operating only three mechanical aerators and inadequate settling in the secondary clarifiers. Four mechanical aerators are now reportedly operating in each aeration tank, and alum is introduced prior to the secondary clarifiers to improve settling. No retesting by EPA has been done nor is any anticipated.

The Riverdale Estates wastewater treatment plant provided an average of 85.6% reduction of BOD_5 and 32.6% reduction of total suspended solids. This plant received a strong waste --- BOD_5 of 456 mg/l and total suspended solids of 369 mg/l. Chlorine residuals averaged 6.8 mg/l and average pH of the effluent was 4.6 (excessive chlorination). Operating adjustments should be made to compensate for the strong waste and reduce chlorination to an effective level which will not alter the pH.

Although the Myrtle Grove wastewater treatment plant received an estimated 0.25 MGD of industrial waste which in the past have interfered with treatment, 90% BOD_5 and suspended solids removals were measured during the survey.

Major Industrial Wastewater Discharges to the Myrtle Grove Wastewater Treatment Plant

Industry	Products or Processes	Water Use[1/] Gallons per Month
Aluminine, Inc.	Aluminum grills	184,000
Anodyne	Lithograph and silk screens	930,000
Atlas Metal Industry, Inc.	Computer and Food Processing Equipment	808,000
Miller Industry, Inc.	Aluminum sliding doors grills, etc.	325,000
Perkins Marine Lamp & Hardware Corp.	Marine Hardware	1,379,000
Sealtest Food Products	Dairy Products	3,087,000
Velda Farms	Dairy Products	--

1/ Water use figures supplied by the North Miami Beach Utilities, Water Department.

The Golden Isles waste treatment plant provided 82% and 80% removal of BOD_5 and suspended solids, respectively. This plant was hydraulically and organically overloaded. Designed for a daily flow of 0.5 MGD and a BOD loading of 850 pounds per day, the plant was receiving an average flow of 0.642 MGD and a BOD_5 load of 1,000 pounds per day.

The Country Club of Miami wastewater treatment plant provided 95% reduction of BOD_5. A private laboratory reported 90% reduction of total suspended solids in the mechanical treatment plant. Lower Florida Estuary Study testing showed 85% reduction of TSS based on effluent from the polishing pond. This difference is probably due to the growth of algae in the pond.

The Palm Springs North wastewater treatment plant provided 93% reduction of BOD_5 and 98% reduction of total suspended solids from an average daily flow of 0.45 MGD.

The Carol City and Myrtle Grove plants are to be abandoned in 1971, and their raw wastes diverted to the North Miami ocean outfall. The BOD_5 loading to Snake Creek will be reduced by approximately 800 pounds per day, with proportionate reductions in other pollutants. Abandonment of these treatment plants is inconsistent with the Conference recommendation that a minimum of secondary treatment, with at least 90% BOD_5 removal and year-round chlorination of effluent, be provided all waste before discharge to the ocean. The North Miami discharge has no treatment other than skimming. These two plants should remain in operation with their treated effluent discharged through the ocean outfall until other provisions for adequate treatment are made.

Biscayne Canal and Little River Drainage

The Miami Lakes Utilities wastewater treatment plant removed 79.8% BOD_5 and 70.9% suspended solids. This plant received industrial wastes from 21 industries in the Miami Lakes Industrial Park. At the time of the survey, plant management had no assessment of the quality or quantity of the industrial fraction. Subsequently, steps have been taken to improve operations and to pretreat certain industrial wastes.

The Seaboard Industrial Park wastewater treatment provided an average of 95% reduction of BOD_5 and 95.2% reduction of total suspended solids from a flow of 0.12 MGD.

The Opa Locka Airport wastewater treatment plant provided 82% reduction of BOD_5 and 87 % reduction of total suspended solids from a flow of 0.18 MGD. The effluent carried no chlorine residual and bacteria population densities averaged 640,000 per 100 ml of total coliform bacteria and 155,000 per 100 ml of fecal coliform bacteria.

All three of these plants are to be abandoned and the raw waste diverted to the North Miami outfall. Such action is inconsistent with the Conference recommendation of a minimum of secondary treatment prior to ocean disposal. These plants should remain in operation with their treated effluent discharged to the ocean outfall until other provisions for adequate treatment are made.

Miami River Drainage

The Atomic Sewerage plant has an activated sludge process designed to process septic tank pump-out waste. Incoming waste strength averaged 1126 mg/l BOD_5 and 1,348 mg/l TSS. Removal efficiency averaged 90% for BOD_5 and 89% for total suspended solids.

The Doral Country Club wastewater treatment plant provided 90% reduction of BOD_5 and 57.6% reduction of total suspended solids. Treated effluent flow into a lake on the Club property and was subsequently used to irrigate the golf course. Dried sludge was used for fertilizer.

The Little Abner's Trailer Park wastewater treatment plant obtained 84% reduction of BOD_5 and 79% reduction of total suspended solids from a flow of 72,000 gallons per day.

The Pan American Hospital wastewater treatment plant provided 97.8% reduction of BOD_5 and 60% reduction of total suspended solids. Erratic suspended solids removal was caused by carryover of a floc formed in the chlorine contact chamber after chlorination. Modifications to permit chlorination prior to tertiary treatment were being made in an attempt to correct this problem. No current information on the results of that attempt are available.

Coral Gables Waterway Drainage

The Community Utilities wastewater treatment plant discharged 230 pounds per day BOD_5 and 499 pounds per day suspended solids to the Coral Gables waterway. A BOD_5 reduction of 94.4% was being achieved. This plant is to be abandoned, with the raw waste flowing to Virginia Key.

Snapper Creek Drainage

The Peninsular Utilities plant removed 89.5% BOD_5 and 88.9% suspended solids from a 2.5 MGD flow. In early 1971, the plant initiated a deep-well injection system.

Low removal efficiencies by the Southern Estates wastewater treatment plant (76.1% BOD_5 and 69.7% suspended solids) was attributed to an extreme hydraulic overload, (140% of design flow) . Excess flow was

attributed to infiltration (verified by the low influent BOD_5 concentration of 134 mg/1). This problem can be corrected by either elimination of infiltration, or expansion of treatment facilities.

The Westwood Lakes wastewater treatment plant removed 74% and 94.3% of BOD_5 and suspended solids, respectively. Recent modifications to the treatment process resulted in instability. No re-evaluation was done nor is any planned.

Black Creek Drainage

The Cutler Ridge wastewater treatment plant removed 86.5% BOD_5 and 73.8% suspended solids. Mechanical difficulties with a secondary clarifier reduced average removal efficiencies.

The Bell Aire wastewater treatment plant removed 77.8% BOD_5 and 89.5% suspended solids. Plans have been initiated to provide an activated sludge unit, but have been suspended pending clarification of discharge requirements.

The South Miami Heights wastewater treatment plant provided 91% reduction of BOD_5 and 85% reduction of total suspended solids. A slug of waste from a sewer cleaning project was received at the outset of the study, and this contributed to the poor solids removal. During the last three days of the study, operation stabilized and removal efficiencies were well above 90% for both BOD_5 and TSS.

South Bay Drainage

The Homestead Air Force Base wastewater treatment plant was hydraulically overloaded. Designed for 1.0 MGD, it receives approximately 2.5 MGD during winter and 3.0 MGD during summer. Removal efficiencies were 63.7% for BOD_5 and 76.0% for suspended solids. Primary and secondary

clarifiers are to be expanded and sand filters added.

The City of Homestead wastewater treatment plant provided 82.7% reduction of BOD_5 and 84.7% reduction of total suspended solids from 0.873 MGD. Although the effluent carried a chlorine residual, total coliform bacterial population densities of up to 130,000 per 100 ml indicated incomplete disinfection.

The South Dade Farm Labor Camp wastewater treatment plant achieved 93.9% reduction of BOD_5 and 98.7% reduction of total suspended solids from a flow of 0.126 MGD.

The Redlands Labor Camp wastewater treatment plant achieved the highest treatment efficiency of all major plants with 96.6% reduction of BOD_5 and 96% reduction of total suspended solids. The flow was 57,000 gallons per day. Influent waste strength was high with a BOD_5 of 969 mg/l and TSS of 1,332 mg/l. The plant is a conventional trickling filter system followed by a microstrainer. Effluent is discharged to sand filters and returned to ground water.

The Leisure City wastewater treatment plant provided 86.8% reduction of BOD and 81.2% reduction of total suspended solids from 0.296 MGD.

Direct Ocean Discharge

The City of Miami Virginia Key plant treated approximately 40 MGD with a removal efficiency of approximately 80% BOD_5 and 90% suspended solids reduction. The plant, designed for 75% BOD_5 reduction, should be upgraded to provide 90% BOD_5 and TSS removal and expanded to provide additional flow capacity. The ocean outfall should be extended to the edge of the Gulf Stream.

The North Miami and Miami Beach ocean outfalls discharged approximately 15 and 22 MGD, respectively, of wastewater with limited treatment (skimming). Ninety percent treatment recommended by the Conferees would reduce the BOD_5 loading by approximately 33,000 pounds per day.

MINOR MUNICIPAL WASTE SOURCES

Forty-seven minor municipal waste sources were surveyed between December 2, 1970 and February 2, 1971. Four additional plants were inventoried but were not sampled because they were new installations which had not reached operational stability. The location of each plant is shown in Figure 2. Grab samples were collected from influent and effluent and analyzed for 5-day biochemical oxygen demand (BOD_5), chemical oxygen demand (COD), total organic carbon (TOC), total suspended solids (TSS), volatile suspended solids (VSS), and settleable solids. Additionally, effluent samples were analyzed for nitrogen compounds, total phosphorous and chloride. Temperature, chlorine residual and flow were determined in the field.

An inventory of minor municipal plants is given in Table 3 and a summary of analytical results is presented in Tables A-6 through A-10. Individual evaluation reports on each plant were prepared and are compiled in Technical Appendix II. Plant performance was considered satisfactory if 90% reduction of BOD_5 and TSS was provided.

Of the 47 minor wastewater treatment plants in Dade County, 21 plants discharged to the surface water and 26 plants discharged to the ground. The total flow from these plants was 0.915 MGD.

Only 13 plants met treatment criteria for both BOD_5 and suspended solids removal. Nineteen plants, accounting for 0.634 MGD, provided greater than 90% removal of BOD_5, but only 13 plants, accounting for 0.294 MGD, provided greater than 90% removal of TSS. Only 22 plants had licensed operators or were operated by licensed consultants.

Atlantic Ocean and Biscayne Bay Drainage Area

The Coast Guard Base wastewater treatment plant received an average flow of 0.014 MGD and was hydraulically overloaded by 44%. The BOD_5 removal efficiency was 95%; TSS removal was 28%. The plant did not meet the treatment criteria. Chlorine residual was 1.0 mg/1. This plant had a licensed operator.

The Shores Condominium wastewater treatment plant produced 82.3% BOD_5 removal and 60% total suspended solids removal. This plant did not meet the treatment criteria. Chlorine residual was 2.0 mg/1.

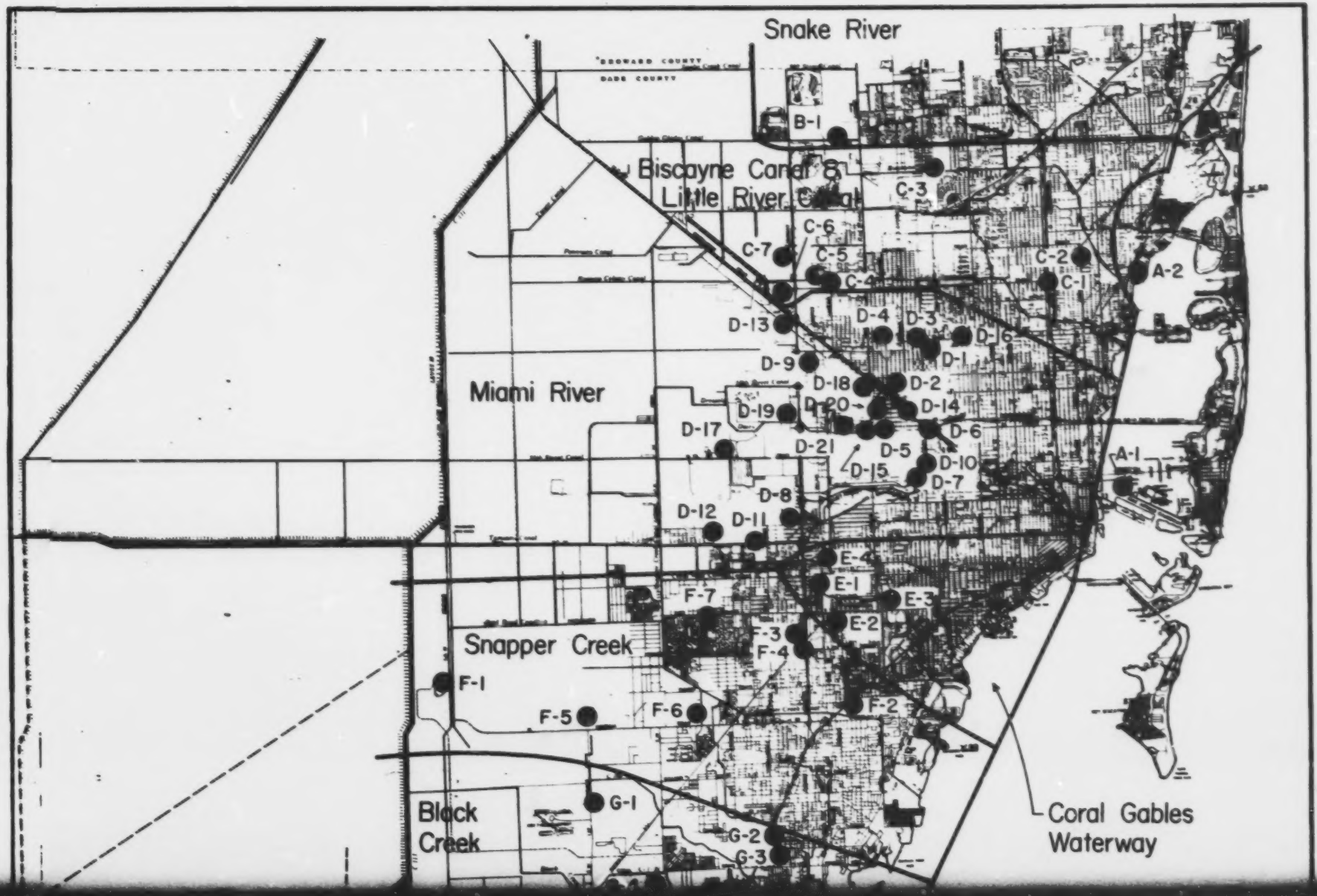
Snake Creek Drainage Area

The Dade Christian Schools treatment plant discharged to the 205th Street Canal after 69% BOD_5 removal and 81.9% TSS removal. It did not meet the treatment criteria. An extremely high concentration of nitrite-nitrate nitrogen, 136 mg/1, was discharged. Chlorine residual was 0.5 mg/1. The plant operator was not licensed.

Biscayne Canal and Little River Drainage Area

Six minor wastewater treatment plants in the Biscayne Canal and Little River drainage area were sampled. Food Fair Store #291 and Barry College plants discharged to the ground through drainfields. Monsignor Pace High School plant discharged to the Biscayne Canal. Del Rey Gardens Condominium, Palm Springs General Hospital, and Palm Springs Garden Condominium plants discharged to Little River.

The Barry College, Monsignor Pace High School, Palm Springs Garden Condominium, Del-Rey Gardens, and Palm Springs Hospital plants did not provide 90% removal of BOD_5 and/or TSS. All plants had chlorine residuals greater than 1.8 mg/1 except Barry College which had no chlorine residual. Three operators were licensed.


Snake River
BROWARD COUNTY
DADE COUNTY
B-1
Biscayne Canal &
Little River Canal
C-3
C-6
C-7
C-5
C-4
C-2
C-1
A-2
D-13
D-4
D-3
D-16
D-1
D-9
Miami River
D-18
D-2
D-19
D-20
D-14
D-17
D-6
D-21
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Snapper Creek
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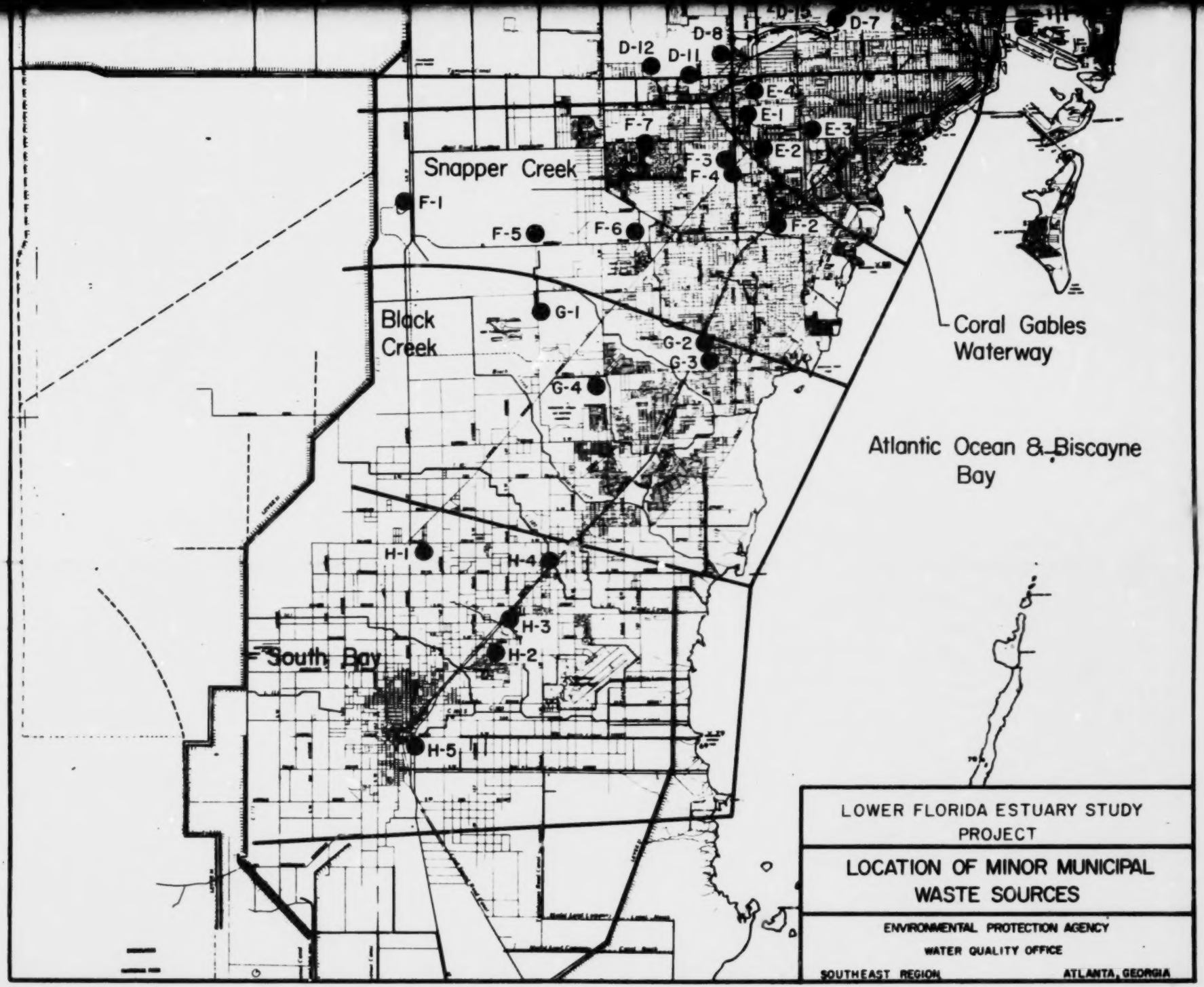
Black
Creek
G-2
G-3
Coral Gables
Waterway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F-4
Snapper Creek
F-1
F-5
F-6
F-2
G-1
Black Creek
G-2
G-3
G-4
Coral Gables Waterway
Atlantic Ocean & Biscayne Bay
H-1
H-4
H-3
South Bay
H-2
H-5
LOWER FLORIDA ESTUARY STUDY PROJECT
LOCATION OF MINOR MUNICIPAL WASTE SOURCES
ENVIRONMENTAL PROTECTION AGENCY
WATER QUALITY OFFICE
SOUTHEAST REGION
ATLANTA, GEORGIA

Table 3.--Summary of Inventory Information and Abatement Needs for Minor Wastewater Treatment Plants in Dade County, Florida

	Name of Source and Address	Average Flow Design	Average Flow Actual	Population Served	Removal Efficiency %BOD	Type of Treatment	Effluent Discharged to	Remarks
	A. Atlantic Ocean and Biscayne Bay							
A-1	Coast Guard Station 100 McArthur Causeway Miami	.01	.0144	200	97.9	Extended Aeration	Government Cut	Plant expansion - hydraulic overload problem - increased solids removal.
A-2	Shores Condominium 1700 N.E. 105th Street North Miami	.02	-	200	82.3	Rapid Block	Biscayne Bay	Licensed operator required.
	B. Snake Creek							
B-1	Dade Christian Schools 6601 N.W. 167th Street Carol City	.07	.015	2,000	69.1	Extended Aeration, tertiary filter	205th Street Canal	Severe underload compensation.
	C. Biscayne Canal and Little River							
C-1	Food Fair Store #291 10400 N.W. 7th Avenue Miami Shores	.015	-	-	98.9	Extended Aeration	Drainfield	-
C-2	Barry College 11300 N.E. 2nd Avenue North Miami	.06	.03	1,400	85.8	Extended Aeration	Drainfield	Chlorination.
C-3	Monsignor Pace High School 15600 N.W. 32nd Avenue Opa Locka	.03	-	750	86.9	Extended Aeration	Biscayne Canal	Licensed operator required. Improved maintenance.

Table 3.--Summary of Inventory Information and Abatement Needs for Minor Wastewater Treatment Plants in Dade County, Florida--Continued

	Name of Source and Address	Average Flow Design	Average Flow Actual	Population Served	Removal Efficiency %BOD	Type of Treatment	Effluent Discharged to	Remarks
	C. Biscayne Canal and Little River (Continued)							
C-4	Del-Ray Gardens 1255 W. 49th Place Hialeah	.040	.006	484	94.4	Contact Stabilization	Little River	Phased out.
C-5	Palm Springs Hospital 1479 W. 49th Street Hialeah	.050	.014	239 (Beds)	80.9	Extended Aeration	Little River	-
C-6	Palm Springs Garden Condominium 170 Royal Palm Road Hialeah Gardens	0.05	0.02	450	76.8	Contact Stabilization	Little River	-
C-7	Palmetto General Hospital Palmetto By-Pass & N.W. 122nd St. Hialeah	.036	-	-	-	Contact Stabilization, tertiary filters	Gratiguy Canal	Recently put in operation.
	D. Miami River							
D-1	Winn Dixie Stores 1051 S.E. 8th Street Miami	.04	-	-	-	Complete Mix, tertiary filters	Soakage pit	Soon to be phased out.
D-2	Hialeah City Hall 501 Palm Ave., Hialeah	.04	-	550	90.4	Rapid Bloc, tertiary filters	Drainfield	-
D-3	Hialeah Hospital 651 E. 25th Street Hialeah	.09	-	250 (Beds and staff)	92.2	Extended Aeration and contact stabilization, open sand filters	Drainfield	Licensed operator required.
D-4	Hialeah Convalescent Home 190 W. 28th Street Hialeah	.025	-	350	69.1	Contact stabilization	2 Drainfields	Improved maintenance.
D-5	Kings Inn 500 Deer Run Virginia Gardens	.02	-	110 (Rooms)	84.0	Rapid Bloc	Drainfield	Licensed operator.

Table 3.--Summary of Inventory Information and Abatement Needs for Minor Wastewater Treatment Plants in Dade County, Florida--Continued

	Name of Source and Address	Average Flow Design	Average Flow Actual	Population Served	Efficiency %BOD	Type of Treatment	Effluent Discharged to	Remarks
	D. Miami River (Continued)							
D-6	Holiday Inn 1111 S. Royal Poinciana Blvd. Miami	.025	-	162	98.7	Extended Aeration	Miami Canal	-
D-7	Airport Lanes 1850 N.W. 42nd Avenue Miami	.022	.011	240	97.2	Extended Aeration	Tamiami Canal	-
D-8	Midway Mall West Flagler St. & Palmetto Expressway, Miami	.12	.06	84 Stores	98.3	Contact Stabilization	North Line Canal	-
D-9	Air Traffic Control 7500 N.W. 58th Street Medley	.009	-	400	99.5	Rated Aeration	58th Street Canal	-
D-10	Howard Johnson's 1980 N.W. Le Jeune Road Miami	.025	-	-	97.9	Contact stabilization	Tamiami Canal	Adequate operation.
D-11	My-Am-EE Mobile Home Park 9000 S.W. Grand Canal Drive Miami	.03	-	196 Sites	96.3	Extended Aeration, oxidation ponds	Tamiami Canal	-
D-12	Blue Lakes Trailer Park S.W. 102nd Ave. and West Flagler St., Miami	.034	-	241 Sites	98.0	Extended Aeration	Tamiami Canal	-
D-13	Medley Mobile Home Court 8181 South River Drive Medley	.035	.003	315	95.9	Contact Stabilization, tertiary filters	Soakage pit	Licensed operator required.
D-14	Saratoga Springs Apartments 400 N. Poinciana Blvd. Hialeah	.013	-	250	52.2	Extended Aeration	Drainfield	Licensed operator required.

Table 3.--Summary of Inventory Information and Abatement Needs for Minor Wastewater Treatment Plants in Dade County, Florida--Continued

	Name of Source and Address	Average Flow Design	Average Flow Actual	Population Served	Removal Efficiency %BOD	Type of Treatment	Effluent Discharged to	Remarks
	D. Miami River (Continued)							
D-15	Queens Inn Hotel 5335 N.W. 36th Street Virginia Gardens	.016	-	320	86.3	Extended Aeration, tertiary filters	Drainfield	-
D-16	79th Street Shopping Center 3015 N.W. 79th Street Miami	.045	-	450	92.8	Extended Aeration, tertiary filters	Drainfield	Licensed operator required.
D-17	American Hospital Supply N.W. 97th Ave. and 25th St. Miami	.10	-	150	93.2	Contact stabilization, tertiary filters	N.W. 25th Street Canal	-
D-18	Miami Springs High School 750 Dove Avenue Miami Springs	.02	-	-	71.8	Complete Mix	Drainfield	Surge problem.
D-19	Country Club Garden Apartments N.W. 79th Ave. and 41st St. Medley	.14	.02	1,520	98.5	Contact stabilization, tertiary filters	Private lake	-
D-20	Fair Havens Retirement Home Morningside and Reinette Miami Springs	.030	-	-	-	Contact stabilization. Jetflo filters	Soakage pit	Recently put in operation.
D-21	Virginia Gardens Apartments 6055 N.W. 37th St. Virginia Gardens	.004	-	-	-	Extended Air tertiary filters	Soakage pit	Recently put in operation.
	E. Waterway Basin							
E-1	Westchester Hospital 7500 Coral Way Coral Gables	.03	.015	100 (Beds & staff)	97.8	Extended Aeration	Coral Gables Canal	Licensed operator required.

Table 3.--Summary of Inventory Information and Abatement Needs for Minor Wastewater Treatment Plants in Dade County, Florida--Continued

	Name of Source and Address	Average Flow Design	Average Flow Actual	Population Served	Removal Efficiency %BOD	Type of Treatment	Effluent Discharged to	Remarks
E-2	Goldberg Apartments 6775 S.W. 44th St. South Miami	.01	-	120	96.0	Extended Aeration tertiary filter	Soakage pit	-
E-3	Biltmore Hotel 1200 Anastasia Avenue Coral Gables	.30	-	100	88.0	Trickling Filter	Coral Gables Canal	Severe underload.
E-4	Ludlam Plaza Apartments Ludlam Road and S.W. 15th St. South Miami	.0125	-	155	99+	Extended Aeration	Drainfield	-
F.	Snapper Creek							
F-1	Florida Portland Cement Krome Ave. and S.W. 64th St. Westwood Lakes	.0045	-	130	89.6	Imhoff Tank trickling filter	Drainfield	-
F-2	Jade Garden Apartments S.W. 65th Ave. and U.S. 1 South Miami	.0385	-	200	99.1	Contact stabilization	Snapper Creek Canal	Licensed operator required.
F-3	Miller Lake Apartments 5500 S.W. 77th Court Westwood Lakes	.05	.003	500	70.9	Contact stabilization, tertiary filters	Soakage pit	-
F-4	Lakeview Gardens Apartments 7711 Miller Drive Westwood Lakes	.03	-	300	89.0	Contact stabilization	Drainfield	Licensed operator required.
F-5	Kendale Lakes S.W. 147th Ave. and Kendale Dr. Kendale	.50	0.05	-	96.9	Contact stabilization	Lindgrin Road Canal	-
F-6	Kendale Complex 8500 S.W. 107th Ave. Kendale	.135	-	-	85.0	Imhoff Tank trickling filter oxidation pond	Drainfield	-
F-7	Caravel West Apartments Bird Road and 102nd Ave. Westwood Lakes	.020	-	-	-	Extended Air Tertiary filters	Soakage pit	Recently put in operation.

Table 3.--Summary of Inventory Information and Abatement Needs for Minor Wastewater Treatment Plants in Dade County, Florida--Continued

	Name of Source and Address	Average Flow Design	Average Flow Actual	Population Served	Removal Efficiency %BOD	Type of Treatment	Effluent Discharged to	Remarks
	G. Black Creek							
G-1	Camp Matecumbe S.W. 120th St. and 137th Ave. Aladin City	.035	-	70	94.5	Extended Aeration, open sand filters	Sand filters - ground	Licensed operator required.
G-2	Casa Granada Apartments S.W. 87th Ave. and 141st St. Howard	.02	-	89 Units	96.4	Contact stabilization. Tertiary filters	C-100 Canal	-
G-3	El Rancho Apartments 14500 S.W. 88th Ave. Rockdale	.02	-	89 Units	96.5	Contact stabilization. Tertiary filters	Soakage pit	-
G-4	Naval Air Station S.W. 122nd Ave.and 152nd St. Howard	.15	-	100	31.6	Conventional activated sludge	Drainfield	Licensed operator required.
	H. South Bay							
H-1	Redlands Mobile Home Park 17350 Silver Palm Drive Redlands	.015	-	80 Sites	95.2	Complete Mix	Drainfield	-
H-2	Helman Court Apartments 15401 Biscayne Drive Homestead	.025	-	128 Units	96.7	Extended Aeration	Drainfield	Licensed operator required.
H-3	Sweden House 14875 S. Dixie Highway Naranja	.02	-	520	72.2	Extended Aeration	Drainfield	-
H-4	Steak and Brew Restaurant 13190 S. Dixie Highway Goulds	.015	-	200	99.2	Extended Aeration	Drainfield	-

Table 3.--Summary of Inventory Information and Abatement Needs for Minor Wastewater Treatment Plants in Dade County, Florida--Continued

	Name of Source and Address	Average Flow Design	Average Flow Actual	Population Served	Removal Efficiency %BOD	Type of Treatment	Effluent Discharged to	Remarks
	H. South Bay (Continued)							
H-5	Sea Glade Motel S.W. 322nd St. and U.S. 1 Florida City	.004	-	32 Units	82.7	Extended Aeration open sand filter	Soakage pit	-

Miami River Drainage Area

Nineteen minor wastewater treatment plants in the Miami River drainage area were sampled. Winn Dixie Stores, Hialeah City Hall, Hialeah Hospital, Hialeah Convalescent Home, Kings Inn, Medley Park, Saratoga Springs Apartments, Queens Inn Hotel, Seventy-ninth Street Shopping Center, and Miami Springs High School discharged waste into soakage pits or drainfields. The Holiday Inn plant discharges directly into the Miami River. Airport Lanes, Howard Johnson's, My-Am-Ee Trailer Park, and Blue Lakes Trailer Park plants discharged into Tamiami Canal. Midway Mall, Air Traffic Control Center and American Hospital Supply plants discharged into tributary canals of the Miami River or Tamiami Canal. The Country Club Garden Apartments plant discharged into a private lake.

Hialeah Convalescent Home, Kings Inn, Saratoga Springs Apartments, Queens Inn Hotel, Miami Springs High School, Hialeah City Hall, Holiday Inn, Midway Mall, Air Traffic Control Center, Blue Lakes Trailer Park, Medley Mobile Park, Seventy-ninth Street Shopping Center, American Hospital Supply, and Country Club Gardens Apartments, did not provide 90% BOD_5 and/or TSS removal.

The total daily nutrient loads discharged were 72 pounds of nitrogen compounds and 24 pounds of total phosphorus. The Howard Johnson's, Saratoga Apartments, and the Seventy-ninth Street Shopping Center plants had chlorine residuals less than 0.5 mg/l. Six plants had licensed operators and four plants were operated by licensed consultants.

Coral Gables Waterway Drainage Area

Westchester Hospital and Biltmore Hotel plants discharged directly into Coral Gables Waterway. Goldberg Apartments and Ludlam Plaza Apartments plants discharged into a soakage pit and drainfield, respectively. None of these plants met the treatment criteria for BOD_5 and TSS.

Nitrogen compounds and total phosphorus discharged were 7 and 3 lbs. per day, respectively. Goldberg Apartments, Biltmore Hotel, and Ludlam Plaza Apartments plants had chlorine residuals less than 0.5 mg/l. Westchester Hospital, Goldberg Apartments and Biltmore Hotel plant operators were not licensed.

Snapper Creek Canal Drainage Area

Jade Gardens Apartments plant discharged directly into Snapper Creek. The Kendale Lakes plant discharged into Lundgrin Road Canal, and the Florida Portland Cement, Miller Lake Apartments (Venook Apartments), Lakeview Garden Apartments and Kendall Complex plants discharged into soakage pits or drainfields.

Miller Lake Apartments, Lakeview Gardens Apartments, Kendall Complex, and Kendale Lakes plants did not provide 90% removal of BOD_5 and/or TSS.

Jade Gardens Apartments and Miller Lake Apartments plants had chlorine residuals of less than 0.5 mg/l. Kendale Lakes and Kendall Complex plants were operated by utility companies, and Miller Lake Apartments had a licensed operator.

Black Creek Drainage Area

The Casa Granada Apartments plant discharged into Canal C-100, and Camp Matecumbe, El Rancho Apartments and Naval Air Station plants discharged to the ground. The Naval Air Station plant did not provide 90% BOD_5 and/or TSS reduction.

Camp Matecumbe and Naval Air station plants had no chlorine residual. These two plants were operated by unlicensed personnel. The other plants were operated by licensed consultants.

South Bay Drainage Area

Redlands Mobile Home Park, Helman Court Apartments, Sweden House, Steak and Brew Restaurant, and Sea Glades Motel wastewater treatment plants discharged to the ground.

Sweden House, Sea Glades Motel, and Helman Court Apartments plants did not provide 90% removal of BOD_5 and/or TSS.

Thirty-five lbs per day of TSS were discharged by the Helman Courts Apartments plant. Nitrogen compounds and total phosphorus discharged were 6 and 5 lbs. per day, respectively. The Helman Court Apartments and Sweden House plants had chlorine residuals less than 0.5 mg/l. The Helman Court Apartments and Sea Glades Motel plants were operated by unlicensed personnel. The remaining plants were operated by licensed parent facilities personnel or by licensed consultants.

Operational Problems at Minor Treatment Plants

Most of the minor wastewater treatment plants in Dade County are package plants which use modifications of the activated sludge treatment process. Following is a list of their most common operational problems:

* surging - can be connected with aerated surge tanks or flow splitter boxes to level peak flows.
* inadequate methods for supernatant and sludge handling -- all digesters should have multiple level outlets.
* solids accumulation - all tanks including chlorine contact chambers and transfer sumps should be sloped to a drain or sump through which the tank can be emptied for cleaning and maintenance.
* clogged pressure filters - no submersible pump should be placed in the equalizing tanks for pressure filters. A submersible pump will force solids directly into the pressure filter, permanently clogging the media.
* clogged gravity feed chlorinators - a pump driven system is recommended to reduce clogging.
* absence or malfunction of flow measuring devices - flow meters should be installed at all plants and periodically calibrated.

It is not possible to correlate efficiency of operation with licensing of operators, because of the various types of processes and the variation of loading conditions. However, it is safe to assume that efficiency of operation would increase if personnel were trained in plant operations and were required to earn a certification.

Most package plants are not collecting adequate chemical data to insure proper operation. Data requested by the State Health Department should meet this requirement.

The 47 minor treatment plants in Dade County treat only 0.915 MGD of waste. These plants require a disproportionally high amount

of labor to operate and maintain them. Therefore, it would be more economically efficient if these plants were phased out and their collection systems connected to regional treatment plants.

INDUSTRIAL WASTE SOURCES

Survey Methods

A list of over 1,800 industries was developed from manufacturers indices and city directories. Five hundred eighty three (583) liquid waste producing industries which were potential sources of industrial waste were interviewed by telephone. Information was obtained on the type and size of the industry, processes, waste treatment and disposal. Water use data were obtained from industries or water supply utilities to insure that major water users were included.

Two hundred thirty three (233) industries were visited and information was requested on the origin, type, and disposal of wastewaters; plant processes; water supply; and wastewater quality. Where applicable, FWQA Form 120, "Report of Industrial Waste Water Disposal," was completed. Also where applicable, a tour of the plant was requested and generally permitted by the industry.

No discharges were sampled during this survey, but a list of industries which should be sampled was prepared with information on sampling locations and general character of the waste. Inspection reports were prepared for 95 industries which were considered significant pollution sources. These reports are contained in Technical Appendix III, Industrial Waste Sources Inventory and Evaluation. Table 4 provides a summary of information on 89 major sources of industrial wastewater in Dade County. Water use figures reflect mean usage over a recent two to four months period.

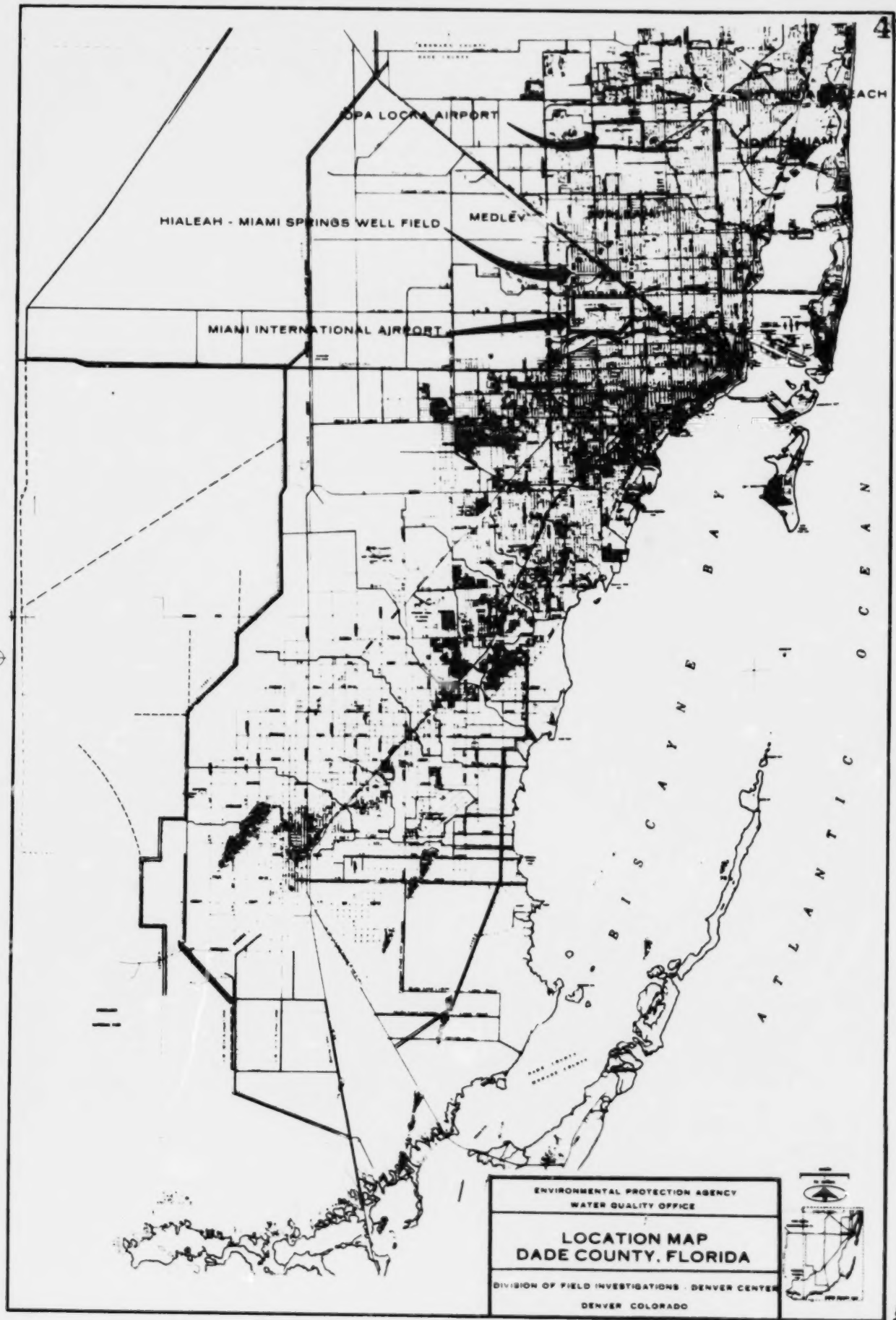
OPA LOCKA AIRPORT
HIALEAH - MIAMI SPRINGS WELL FIELD
MEDLEY
MIAMI INTERNATIONAL AIRPORT
BISCAYNE BAY
ATLANTIC OCEAN
ENVIRONMENTAL PROTECTION AGENCY
WATER QUALITY OFFICE
LOCATION MAP
DADE COUNTY, FLORIDA
DIVISION OF FIELD INVESTIGATIONS - DENVER CENTER
DENVER COLORADO

Table 4.--Significant Industrial Wastewater Sources in Dade County, Florida

Industry	Major Product or Service	Water Use Type and Amount	Nature of Waste Discharged	Receiving Water	Present Treatment	Treatment Needs - Remarks
Acme Plating and Finishing 651 West 13th Street Hialeah	Electroplating	Rinse water 1,386,000 gal/mo(4)	Heavy metals	Ground water	Minor	Pretreatment and sewer connection. Sample effluent and wells for heavy metals.
Aerodex, Inc. Miami International Airport Miami	Aircraft servicing	Wash water, sanitary 5,550,000 gal/mo(2)	Grease, oil and heavy metals, cyanide.	Canal tributary to Miami River, Sanitary sewer	Oil seperator, pH control	Adequate pretreatment and sewer connection. Sample for oil, grease, and heavy metals.
Airco Plating 3636 NW 46th Street Miami	Electroplating	Rinse water 838,000 gal/mo(4)	Heavy metals	Ground water	Neutralization, detention	Pretreatment and sewer connection. Sample well for heavy metals.
Aircraft Plating, Inc. 4101 NW 28th Street Miami	Electroplating	Wash water 3,490,000 gal/mo(3)	Heavy metals	Sanitary sewer Virginia Key	Reduction of cyanide and chromium	Data from Dade County. Company was under litigation. Recent sewer connection.
Airlift, International Miami International Airport Miami	Air freight operator	Aircraft cleaning 258,000 gal/mo(2)	Oil, solvents	Canal tributary to Miami River	Oil seperator	Pretreatment and sewer connection. Sample effluent for oil.
Airtech Services, Inc. Miami International Airport Miami	Light-aircraft overhaul	Aircraft washing 150,000 gal/mo(2)	Oil	Sanitary sewer Virginia Key	Oil seperator	None
Alert Plating 1115 NW 10th Avenue Miami	Bumper refinishing	Rinse water 1,542,000 gal/mo(3)	Heavy metals	Sanitary sewer Virginia Key	Drip tank prior to rinse	Sample effluent for heavy metals
Alton Box Board 6891 NW 74th Street Medley	Corrigated cardboard	Wash water, starch makeup	Ink, starch	recycled into starch, ground water	Settling, septic tank	Connection to sewer system.
Aluminaire, Inc. 1600 NW 165th Street North Miami Beach	Aluminum grills	Rinse water 184,000 gal/mo(6)	Aluminum	Sanitary sewer, Myrtle Grove		Sample effluent for aluminum
Aluminum Anodizing Company 3630 NW 76th Street Miami	Anodyzed aluminum	Rinse water 700,000 gal/mo(4)	Aluminum, acid, caustic, dye	Ground water	Settling	Adequate pretreatment and sewer connection. Sample effluent and wells for aluminum.

Table 4.--Significant Industrial Wastewater Sources in Dade County, Florida--Continued

Industry	Major Product or Service	Water Use Type and Amount	Nature of Waste Discharged	Receiving Water	Present Treatment	Treatment Needs - Remarks
Aluminum Finishing Corp. of Florida 13464 NW 26th Avenue Opa Locka	Anodyzed aluminum	Rinse water 1,919,000 gal/mo(7)	Aluminum, acid, caustic, dye	Ground water	Settling	Adequate pretreatment and sewer connection. Sample effluent and wells for aluminum.
American Plating 50 NW 22nd Avenue Miami	Decorative plating	Rinse water 9,000 gal/mo(3)	Heavy metals	Sanitary sewer Virginia Key		Drip tank prior to rinse. Sample effluent for heavy metals.
Anodyne 1270 NW 165th Street Miami	Lithograph and silk-screen print.	Wash water dye makeup 930,000 gal/mo(6)	Dye, heavy metals	Sanitary sewer, Myrtle Creek	pH control, aeration	Sample effluent for heavy metals.
Arrow Beef Corporation 18330 NE 2nd Avenue Miami	Cut meat from carcasses	Wash water	Dried blood	Sanitary sewer Myrtle Grove	Crease trap	Pretreatment
Associated Plastics 10101 E. 31st Street Hialeah	Paints	Product makeup, washing 62,000 gal/mo(1)	Paint, solvent	Ground water		Connection to sewer system.
Atlas Metal Industries, Inc. 1135 NW 159th Drive North Miami	Fabricated metal	Rinse water	Heavy metals	Sanitary sewer Myrtle Grove		Sample water supply and effluent for heavy metals.
August Bros. Bakery Seaboard Industrial Park Miami	Bread products	Wash water	High organic load	Sanitary sewer Seaboard Ind. Park		Sample effluent for BOD
Beverage Canners Seaboard Industrial Park Miami	Canned soft drinks	Product makeup, wash water 3,320,000 gal/mo(3)	Organic loading	Sanitary sewer, Seaboard Ind. Park		Sample effluent for BOD
Birmy Photo Engraving Co. 2244 NW 21st Terrace Miami	Photo developing printing, and engraving	Rinse water	Photo chemicals ferric chloride	Sanitary sewer Virginia Key		None

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Table 4.--Significant Industrial Wastewater Sources in Dade County, Flordia--Continued

Industry	Major Product or Service	Water Use Type and Amount	Nature of Waste Discharged	Receiving Water	Present Treatment	Treatment Needs - Remarks
Borden's Dairy 7103 NE 2nd Avenue Miami	Milk and dairy products	Waste water	Organic loading	Ground water		Connection to sewer system.
Britt Metal Processing, Inc. 7490 NW 24th Avenue Miami	Aircraft engine parts	Chrome plating solution, washing 46,000 gal/mo(3)	Chromium	Ground water	Chromium reduction precipitation	Connection to sewer system.
Butler Aviation of Miami, Inc. Miami International Airport Miami	Refurbishing of used aircraft	Aircraft stripping and cleaning 182,000 gal/mo(2)	Oil, caustic, acid, solvents heavy metals	Canal tributary to Miami River	Settling tank	Pretreatment and connection to sewer system
Canada Dry Bottling Co. of Florida, Inc. 5900 NW 72nd Avenue Miami	Soft drinks	Water treatment, product makeup wash water	Organic loading	58th St. Canal	Being installed	Company presently under litigation
Capital Film Labs, Inc. 1998 NE 150th Street North Miami	Movie film processing	Rinse water 920,000 gal/mo(5)	Photo chemicals	Sanitary sewer, North Miami	Silver precipitation, solution recycling	None
Coca Cola Bottling Company of Miami 301 NW 29th Street Miami	Soft drinks	Product makeup, washing 4,511,000 gal/mo(3)	Organic loading	Sanitary sewers, Virginia Key		None
Colebrook Knitting Mills 3965 E. 10th Ct. Hialeah	Knit sweaters	Sweater washing	Natural oils	Closed system	recycling	None
Colorgraphic Photo Engravers 1822 NW 22nd Street Miami	Photo engraving	Rinse water 3,300 gal/mo(1)	Photo chemicals	Sanitary sewers Virginia Key		None
Continental Bumper Plating 4975 E. 10th Lane Hialeah	Bumper refinishing	Rinse water 6,100 gal/mo(4)	Cyanide, heavy metals	Ground water	Settling	Pretreatment and connection to sewer system. Sample effluent

Table 4.--Significant Industrial Wastewater Sources in Dade County, Florida--Continued

Industry	Major Product or Service	Water Use Type and Amount	Nature of Waste Discharged	Receiving Water	Present Treatment	Treatment Needs - Remarks
Continental Can Company Seaboard Industrial Park Miami	Cans	Cooling 314,000 gal/mo(3)	Heat, heavy metals	Sanitary sewer, Seaboard Ind. Park		Sample effluent.
Cott Bottling of Florida 7130 NW 35th Avenue Miami	Soft drinks	Product makeup, washing	Organic loading	Ground water		Connection to sanitary sewer system.
Dade County Dairies 7350 NW 30th Avenue Miami	Milk products	Wash water, cooling	Bacteria, organics	Ground water	Spray irrigation	Connection to sewer system.
Dade Division, American Hospital Supply Corporation 1851 Delaware Parkway Miami	Diagnostic Reagents	Wash water 181,000 gal/mo(1)	Chemicals, bacteria	Sanitary sewer Virginia Key	pH control	Sample effluent
Delta Air Lines Miami International Airport Miami	Airline	Aircraft washing	Oil, solvents	Canal	Oil seperator	Now minor use of facility. Company under litigation.
Diamond Color Labs 1999 NE 150th Street North Miami	Film processing	Rinse water	Photo chemicals	Sanitary sewer North Miami		Inspector refused admission to plant. Sample effluent. Company reportedly treats effluent.
Dodge, Inc. 380 NE 60th Street Miami	Electroplating	Rinse water 29,000 gal/mo(3)	Heavy metals	Ground water	Settling	Pretreatment and connection to sewer system.
Eastern Air Lines Miami International Airport Miami	Airline	Aircraft washing, metal plating 14,520,000 gal/mo(2)	Oil, heavy	Sanitary sewer, Virginia Key Canal	Oil seperator, metal precipitation	Connection of all wastes lines to sewer system
Economy Packing Company 2419 West 3rd Court Hialeah	Killing and cutting beef	Washing 498,000 gal/mo(4)	Grease, organic loading	Ground water	Grease traps septic tanks	Connection to sewer system
Engravers, Inc. 1120 NW 21st Street Miami	Photo engraving	Rinse water	Photo chemicals, heavy metals	Sanitary sewer, Virginia Key	Neutralization, silver precipitation	Classified work, no plant admittance.

51

Table 4.--Significant Industrial Wastewater Sources in Dade County, Florida--Continued

Industry	Major Product or Service	Water Use Type and Amount	Nature of Waste Discharged	Receiving Water	Present Treatment	Treatment Needs - Remarks
Estes Silversmiths 2152 NW 17th Avenue Miami	Decorative plating	Rinse water	Heavy metals	Sanitary sewer, Virginia Key		Small operation.
Far Mac Plating, Inc. 2196 NW 17th Avenue Miami	Metal plating	Rinse water 12,000 gal/mo(1)	Heavy metals	Sanitary sewer, Virginia Key		Sample effluent for heavy metals
Farm Stores, Inc. 5800 NW 74th Avenue Miami	Milk and Ice cream	Process, cooling, boiler from well	Waste milk and products	Ground water	Activated treatment	Better operation at existing waste treatment facilities.
Federal Packing Company 330 W. 23rd Street Hialeah	Killing and cutting beef	Washing 599,000 gal/mo(4)	Blood, paunch manure, grease	Ground water	Ineffective old package plant	Pretreatment. Connect to sewer system when completed in Hialeah area.
Florida Carib Fishery, Inc. 25 SW South River Drive Miami	Lobster Processer		Organic loading from lobster process	Sanitary sewer Virginia Key	None	Pretreatment
Florida Live-Pack Lobster Sales 34 Hook Square Miami Springs	Lobster sales	Cooling water	Coliforms	Canals	Settling	Connection to sewer system. Fecal coliforms apparently result from other tenants (theatre) on property. Company under litigation.
Florida Processing Company 6900 NW 69th Street Miami Springs	Tallow and meat scrap processing	Rinse water boiler feed	Organic loading grease	Trucked to Virginia Key	Package plant chlorination	In operation.
G. Gertz Enterprises 3401 NW 73rd Street Miami	Knitting mill	Washing and dyeing 682,000 gal/mo(4)	Oil and dye	Ground water	Carbon filters	Connection to sewer system.
Gotham Provision Company, Inc. 7301 NW 74th Street Medley	Killing and cutting beef	Washing	Blood, pauch manure, grease	Ground water	Settling, grease trap	Connection to sewer system
Henderson's Portion Pak 4202 Salzedo Coral Gables	Processing food products	Wash water shrimp thawing	Grease, organic loading	Sanitary sewer Coral Gables	Grease trap	None

Table 4.--Significant Industrial Wastewater Sources in Dade County, Florida--Continued

Industry	Major Product or Service	Water Use Type and Amount	Nature of Waste Discharged	Receiving Water	Present Treatment	Treatment Needs - Remarks
Home Milk Producers Association 2451 NW 7th Avenue Miami	Process milk	Wash, cooling 7,266,000 gal/mo(3)	Organic loading	Sanitary Sewer Virginia Key	Recirculated cooling water	None
Homestead Air Force Base Homestead	Air Force Base	Washing aircraft	Solvents, detergent, oil and grease	Canals	Oil seperator	None
Howard Johnson 1631 West Flagler Street Miami	Ice cream	Boiler feed, cooling, process wash water 240,000 gal/mo(3)	Organic loading	Sanitary sewer Virginia Key		None
International Aerodyne, Inc. Miami International Airport Miami	Aircraft maintenance	Aircraft washing and stripping 8,300 gal/mo(2)	Oil, caustic, acid, solvent, heavy metals	Sanitary sewer Virginia Key	None	Pretreatment: Sample drain durin aircraft washing. Question as to disposal of waste.
Jim Robbins Seat Belt Company 705 E. 10th Avenue Hialeah	Finish seat belts from spool fabric	Cooling, washing 3,300,000 gal/mo(4)	Dye	Sanitary sewer for cooling water. Sealed pit for dye wash	None	None
Key Biscayne Hand Print 3480 NW 41st Street Miami	Silk screen printing	Water feed, washing and dyeing	Dye	Hauled away	None	Connect to sewer.
Kim Color (Tremendous Color, Monkey Color, Inc.) 532 West 20th Street, Hialeah	Photo processing	Rinse water 2,196,000 gal/mo(4)	Photo chemicals	Ground water	Settling	Pretreatment and connection to sewer system (Plans have been made for connection)
London Platers 1080 E. 24th Street Hialeah	Decorative plating	Rinse water from well	Heavy metals	Ground water		Pretreatment and connection to sewer system. Sample effluent and wells for heavy metals
McArthur Jersey Farms 6851 NE 2nd Avenue Miami	Milk distribution	Cooling, washing 6,592,000 gal/mo(3)	Organic loading	Ground water		Connection to sewer system

Table 4.--Significant Industrial Wastewater Sources in Dade County, Florida--Continued

Industry	Major Product or Service	Water Use Type and Amount	Nature of Waste Discharged	Receiving Water	Present Treatment	Treatment Needs - Remarks
Miami Aviation Corporation Opa Locka Airport Opa Locka	Aircraft refurbishing	Aircraft stripping and cleaning 280,000 gal/mo(2)	Oil, solvents acid, caustic, heavy metals	Canal via storm drain	None	Pretreatment and connection to existing sanitary sewer system. Sample drainage, trace flow with dye.
Miami Board, Division of Simkins Ind., Inc. P. O. Box 1397 Miami	Cardboard	Cooling, wash, process	Organic loading, settleable solids	Tamiami Canal	Clarification, chlorination	Connection to sewer system. Company under litigation
Miami Dye Works 355 NE 72nd Terrace Miami	Dyed fabrics	Wash water 650,000 gal/mo(3)	Dye, organics	Ground water (salt water)	Settling	Pretreatment and connection to sewer system
Milgo Electronic Corporation 7620 NW 36th Avenue Miami	Electronic equipment manufacture	Rinse water from chrome plating 374,000 gal/mo(4)	Chromium	Ground water	Chromium reduction, settling	Connection to sewer system. Sample effluent for chromium
Miller Industries 16295 NW 13th Avenue Miami	Aluminum pieces	Rinse water 325,000 gal/mo(6)	Hexavalent chromium	Sanitary sewer Myrtle Grove	None	Pretreatment for chromium reduction
Modern Air Transport Miami International Airport Miami	Air freight	Aircraft washing 692,000 gal/mo(2)	Oil, solvents, heavy metals	Canal tributary to Miami River	Primitive oil seperator	Pretreatment and connection to sewer system.
Modern Aluminum Coatings, Inc. 7295 NW 64th Street Miami	Anodyzed aluminum	Rinse water from wells	Aluminum, acid, caustic	Ground water	Settling	Pretreatment and connection to sewer system. Sample inflow and outflow from pond for aluminum.
National Brewing Company 637 NW 13th Street Miami	Fermented drinks	Wash water, product makeup, 16,529,000 gal/mo(3)	Organic loading	Sanitary sewer Virginia Key		None
National Linen Service 1950 NW 1st Avenue Miami	Commercial linen cleaning	Wash water 5,600,000 gal/mo(1)	Soap, oil	Sanitary sewer Virginia Key	Soap degradation	None

Table 4.--Significant Industrial Wastewater Sources in Dade County, Florida--Continued

Industry	Major Product or Service	Water Use Type and Amount	Nature of Waste Discharged	Receiving Water	Present Treatment	Treatment Needs - Remarks
Natro, Inc. (Veric Processing) 2755 W. 8th Avenue Hialeah	Textiles	Unknown	Dye, paint	Ground water	Have plant	Refused to see inspectors. Effluent from plant visibly discolored. Sample.
Neway Laundry 160 Ali Baba Avenue Opa Locka	Commercial laundry	Wash water 1,942,000 gal/mo(7)	Soap, caustic	Sanitary sewer, Opa Locka	Settling	None
Northeast Air Lines Miami International Airport Miami	Passenger and freight airline	Aircraft washing 35,000 gal/mo(2)	Oil, solvents, heavy metals	Canal tributary to Miami River	3 primitive oil seperators	Pretreatment and connection to sewer system.
Pepsi Cola Bottling Company of Miami, Inc. 7777 NW 41st Street Miami	Soft drink manufacture	Process boiler feed domestic use from wells	Unknown constitutants being sampled by Dade County Pollutant Control	Graham Dairy Canal	Have plant	Reddish-brown effluent flow from existing plant. Need to improve and properly operate plant.
Perkins Marine Lamp and Hardware Corporation 16490 NW 13th Avenue Miami	Manufacture marine hardware	Process, boiler feed, domestic use 1,379,000 gal/mo(6)	Heavy metals	Sewer	None	Pretreatment
Propeller Service of Miami and Aero Facilities, Division of Prop. Service Miami International Airport Miami	Aircraft maintenance	Washing 250,000 gal/mo(2)	Oil and grease, solvent cleaner	Sewer, Canal tributary to Miami River	2 oil seperators retention tank hauling service	Verify by sampling that system sewer are adequate pretreatment Connection to sewer system.
Robert Russell Metals 5761 NW 37th Avenue Miami	Produces aluminum extrusion billets	Cooling wells	Metals	Ground water	Settling	Pretreatment and connection to sewer.
Seaboard Coastline Railroad Miami	Freight transport	Washing of rail equipment	Oil, solvents	Canal	Flotation, floculation	Connection to sewer system
Selig Chemical 660 W. 18th Street Hialeah	Warehousing chemical	Washing	Unknown	Ground water	Settling	Pretreatment and connection to sewer.

Table 4.--Significant Industrial Wastewater Sources in Dade County, Florida--Continued

Industry	Major Product or Service	Water Use Type and Amount	Nature of Waste Discharged	Receiving Water	Present Treatment	Treatment Needs - Remarks
Tripure Spring Water Company and Standard Chemical Co. 3355 NW 73rd Street Miami	Bottled water	Wash water, product makeup, boiler feed 506,000 gal/mo(1)	Minerals, detergents	Ground water	None	None
Tropical Plating 1825 NW 79th Street Miami	Decorative metal plating	River water-wells	Heavy metals cyanide	Ground water	Settling	Pretreatment and connection to sewer. Sample effluent for heav metals.
Uni-Vinyl Corporation 3750 NW 43rd Street Miami	PVC compounding	Cooling	PVC and other organics	Ground water	None	Connection to sewer
Zippy Chocolate Beverage 355 NW 52nd Street Miami	Chocolate beverages	Product makeup boiler feed, wash	Organic loading, detergent BOD 800-1,000 mg/l	Ground water	None	Connection to sewer system

Source of Water-Use Data.
1/ Supplied by Company..
2/ Dade County Port Authority.
3/ Miami Water Department.
4/ Hialeah Water Department.
5/ North Miami Water Department.
6/ North Miami Beach Water Department
7/ Opa Locka Water Department.

Table 4.--Significant Industrial Wastewater Sources in Dade County, Florida--Continued

Industry	Major Product or Service	Water Use Type and Amount	Nature of Waste Discharged	Receiving Water	Present Treatment	Treatment Needs - Remarks
Smith and Butterfield 3170 NW 36th Street Miami	Film developer	Rinse water 190,000 gal/mo(1)	Photo chemicals	Ground water	Silver precipitation	Connection to sewer
Smith, Richardson, and Conroy 3500 NW 62nd Street Miami	Portion pack meat	Boiler feed wash water 250,000 gal/mo(1)	Oil and grease Organic loading	Ground water	Settling, oil and grease skimming	Connection to sewer
Southern Air Transport, Inc. Miami International Airport Miami	Air transport freight	Washing aircraft and equipment 50,000 gal/mo(2)	Oil, grease and solvents	Sanitary sewer Virginia Key	Oil skimmer	None
Southern Plating, Inc. 720 NW 72nd Street Miami	Plated aircraft parts	Rinse water 156,000 gal/mo(3)	Cyanide and heavy metals	Sanitary sewer Virginia Key	None	Pretreatment
Southern Beverages 3601 NW 55th Street Miami	Soft drink manufacture	Process product makeup, rinsing	Organics and detergent	Ground water	None	Connection to sewer
Standard Bumper Corporation 2500 W. 3rd Ct., Hialeah	Bumper refurbishing	Rinse water 22,000 gal/mo(4)	Heavy metals, cyanide	Ground water	None	Pretreatment and connection to sewer. Sample effluent for heavy metals.
Super Brand Dairy Seaboard Industrial Park Miami	Milk distribution	Wash water 1,070,000 gal/mo(3)	Organic loading at 860 ppm BOD	Sanitary sewer Seaboard Ind. Park	None	Pretreatment
Sun-Aid Food Products 3615 NW 60th Street Miami	Manufacture jelly, jams, mustard mayonnaise	Product makeup cooling wash 240,000 gal/mo(1)	Organic loading	Ground water	Grease trap	Connection to sewer system
Tallo-Master Scott Road Medley	Grease processing	Wash, cooling	Grease	Canal	Oxidation pond, skimming	Connection to sewer system. Company cited by county for grease discharges.
Tower Paint Company 620 West 27th Street Hialeah	Manufacture paint	Product makeup wash 77,000 gal/mo(4)	Paint, solvents, detergents	Ground water	Settling and sludge disposal	Pretreatment and connection to sewer

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Receiving Waters

Of 89 industries having significant wastewater discharges, 15 discharged into surface water courses, 36 discharged to ground water through seepage pits, and 38 discharged into sanitary sewer systems.

Five plants which discharged to surface waters would be expected to have biodegradable organic wastes. All have some treatment.

Canada Dry - treatment being installed

Florida Live Pack Lobsters - settling

Miami Board - clarifier and chlorination

Pepsi Cola - treatment plant

Tallowmaster - oxidation pond

The 10 remaining surface-discharge plants had wastes such as oil and grease, solvent, detergents, and sludge. Eight are located at the Miami International Airport.

Acrodex

Airlift International

Butler Aviation

Delta Airlines

Eastern Airlines

Miami Aviation

Modern Air Transport

Northwest Airlines

These airport area industries discharged wastes into the canal system within the Miami International Airport tributary to Miami River. Canals are in the Miami Springs-Hialeah well field, a major municipal water supply source for the Miami Metropolitan area.

Homestead Air Force Base and Seaboard Coastline discharged their wastes into canals in their respective drainage basins.

Thirty-six (36) industries discharged untreated (or partially treated) waste to ground water "three dry wells" or seepage pits. This practice is especially common in the Hialeah area immediately adjacent to the Miami Springs-Hialeah well field, and may cause contamination of the groundwater aquifer.

Thirty-eight (38) major industries discharged both process and sanitary wastes into municipal sewer systems. The wastes may be of major concern to the sewage treatment plant operators. Operational difficulties have occurred at the Myrtle Grove and Miami Lakes Utilities plants because of the high proportion of industrial waste.

Sewage system operators are protected from indiscriminate industrial waste discharges by a ruling of the Dade County Board of County Commissioners known as Rule 7--"Regulations of the Use of Sanitary and Storm Sewers and the Discharge of Waters and Wastes into Utilities' Sewerage Systems." Under this rule, utility companies require disclosure through sampling and analysis of the pollution load of certain proposed or existing industrial discharge and may require pretreatment at the industries expense where necessary. A copy of Rule 7 is included in Appendix A-11.

Waste Characteristics

Group I - Food Processing and Paper:

Dairy wastes are high in dissolved organic substances, contain lactic acid and casein and about 1000 mg/l of BOD. Surprisingly, dairy

wastes are reported to contain mercury in the range of 25-75 mg/l.[1/]

Bakery wastes result from discarding and washings and contain sugars and yeasts which exert extremely high BOD.

Meat packing and processing, and rendering plants contain meat scraps, blood, washings, fats and suspended solids arising from trimming, cleaning, and dressing of animals. The BOD_5 levels may be as high as 32,000 mg/l for blood washings while for other processes such as lard rendering BOD_5 may be up to 200 mg/l.

Beverage and bottling operations have variable waste characteristics resulting from alkaline bottling operations, leftover drinks, and syrup spills.

Paper board processing wastes contain suspended solids, settleable solids, andBOD. Past analyses of the Miami Board plant indicated an effluent fecal coliform level of 10^6 per 100 ml.

Group II - Aircraft Engine Repair and Painting:

Wastes from aircraft repair, washing and painting contain detergents, oils and grease, residual metals, cyanides and miscellaneous organic material.

Group III - Chemical and Film Processing wastes:

Photographic wastes consist of spent reducing solutions (hydroquinone and pyrogallol) and fixing solutions (sodium thiosulfate). These solutions exert both chlorine and oxygen demand. In the photographic

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1/ Nemerow, Leonard Nelson, Theories and Practices of Industrial Waste Treatment, Addison-Wesley Publishing Co., Inc., Reading, Mass., 1963, p. 326.

process, other chemicals may be used: ferricyanide as a color bleaching agent, benzyl alochol in color developing, and chromium in slide processing. Proprietary developing and fixing solutions might also enter into the process.

Mercury is reported to be a reagent used at the Dade Division of American Hospital.

Group IV - Metal Plating Industries:

Metal plating wastes may be acidic or alkaline depending upon the plating process or the stage from which the waste is removed. Acidic wastes usually contain sulfuric, hydrochloric, nitric, acetic and/or phosphoric acids. Alkaline wastes may contain sulfide, cyanide and hydroxide anions, detergents, soaps, oils and suspended solids.

Heavy metals such as nickel, chromium, zinc, cadmium, copper, iron, and mercury might enter the waste stream as part of the process or as a contaminant of another metal introduced into the process.

Abatement Actions

Fourteen industries are presently involved in litigation under various Federal and local ordinances (Table 5). Three oil discharge actions are being prosecuted under the 1899 Refuse Act and three are being prosecuted under county regulations. Other industrial cases carried under county ordinance include Canada Dry Bottling Co., Pepsi Cola Bottling Co., Farm Stores, Inc., Florida Live Pack Lobster Sales, Miami Board, Florida Processing, Tallowmaster and Natro, Inc.

Table 5.--Industries Currently Under Enforcement Action

Company	Pollution Problem	Type Action	Status
Aerodex, Inc.	Oil Discharge	1899 Act	Company reducing activities.
Airlift, International	Oil Discharge	1899 Act	Company reinstituted use of oil seperator.
Modern Air Transport	Oil Discharge	1899 Act	Discharges continuing.
Canada Dry Bottling Co.	Process waste to Canal	County Regulation	Continuing. Plant being installed.
Delta Air Lines	Oil Discharge	County Regulation	Activities reduced.
Farm Stores, Inc.	Milk wastes	County Regulation	Existing treatment plant not operating properly.
Florida Live-Pack Lobster Sales	Fecal coliform	County Regulation	Apparently results from cross connection by tenant. Investigation continuing.
Florida Processing	Grease	County Regulation	Now hauling waste to plant, prior to completion of new treatment system.
National Air Lines	Oil Discharge	County Regulation	New plant recently completed.
Pan American Air Lines	Oil Discharge	County Regulation	Recently improved treatment.
Pepsi-Cola Bottling Co.	Process waste	County Regulation	Discharge continuing.
Miami Board, Simkins Industries	Fecal coliform	County Regulation	Apparently results from cross connection. Investigation continuing.
Tallo-Master	Grease discharge	County Regulation	Skimmer not maintained.
Natro, Inc. (Veric Processing)	Paint and dye in effluent	County Regulation	Discharge continuing.

Information furnished by Dade County Pollution Control.

Additional Sampling and Evaluation

Additional industrial waste sampling and analysis at 43 plants was initiated on May 17, 1971. Included in this survey are:

GROUP I - FOOD PROCESSING

Bordens Dairy

Canada Dry

Cott Bottling

Dade Co. Dairies

Economy Packing

Farm Stores

Federal Packing Co.

Florida Live Pack Lobster

Florida Processing Co.

Gotham Provision Co.

MacArthur Jersey Farm

Miami Board

Pepsi-Cola

Tallowmaster

GROUP II - AIRCRAFT REPAIR AND PAINTING

Aerodex

Airlift International

Butler Aviation of Miami

Delta Air Lines

Eastern Air Lines

Homestead Air Force Base

Miami Aviation Corp.

Modern Air Transport

Northeast Airlines

Propeller Service of Miami

Seaboard Coastline Railroad

GROUP III - CHEMICAL AND FILM PROCESSING

Dade Division, American Hospital Supply

Gertz

Kim Color

Miami Dye Works

Natro

Smith and Butterfield

GROUP IV - METAL PLATING

Acme Plating and Finishing

Airco Plating

Aluminum Anodizing Co.

Aluminum Finishing Corp. of Florida

Continental Bumper Plating

London Platers

Milgo Electric Corp.

Modern Aluminum Coatings

Standard Bumper

Tropical Plating

GROUP V - PAINT COMPANIES

Associated Plastics

Tower Paint Co.

Table A-1.--Average Efficiencies and Effluent Loads for Major Municipal Waste Sources, Dade County, Florida
Biochemical Oxygen Demand and Total Suspended Solids

Facility	Flow MGD	Biochemical Oxygen Demand				Total Suspended Solids			
		Influent	Effluent	Percent removal	Load lb/day	Influent	Effluent	Percent removal	Load lb/day
Snake Creek Drainage									
Andover	1.714	164	20	84.0	309	135	17	83.0	200
Carol City	2.030	164	31	82.5	520	146	56	71.2	96
Riverdale Estates	0.362	456	66	85.6	190	369	249	32.6	769
Golden Isles	0.642	182	32	82.4	172	182	31	79.9	166
Myrtle Grove-City of North Miami	1.645	250	21	91.8	289	394	24	93.8	330
Country Club of Miami	0.185	138	4	94.5	6	102	13	85.0	20
Palm Springs North S.D.	0.447	265	18	92.8	67	922	9	98.6	34
Biscayne Canal and Little River Canal Drainage									
Miami Lakes Utilites	0.727	233	42	79.8	253	172	72	70.9	316
Seaboard Industrial Park	0.117	788	32	95.0	31	866	27	95.2	26
Opa Locka Airport-Dade County Port Authority	0.183	187	34	82	60	129	16	87	24
Miami River Drainage									
Atomic Sewerage	0.024	1,126	106	89.9	22	1,348	124	89.0	27
Doral Country Club	0.215	295	28	90.1	53	218	54	57.6	103
Coral Gables Waterway									
Lil' Abner Trailer Park	0.072	402	52	84.1	32	350	80	79.1	52
Pan American Hospital	0.036	209	5	97.8	2	248	65	60.1	20
Community Utilities	2.471	211	12	94.4	230	200	24	87.5	499
Snapper Creek Drainage									
Peninsular Utilites	2.500	230	24	89.5	502	365	41	88.9	847
Southern Estates	1.428	134	31	76.1	373	166	50	69.7	588
Westwood Lakes	1.970	227	57	74.0	939	798	52	94.3	856

Table A-1.--Average Efficiencies and Effluent Loads for Major Municipal Waste Sources, Dade County, Florida
Biochemical Oxygen Demand and Total Suspended Solids --Continued

Facility	Flow MGD	Biochemical Oxygen Demand				Total Suspended Solids			
		Influent	Effluent	Percent removal	Load lb/day	Influent	Effluent	Percent removal	Load lb/day
Black Creek Drainage									
South Miami Heights	1.089	507	34	92.2	306	958	83	85.1	751
Cutler Ridge	2.195	209	21	86.5	479	374	78	73.8	1,473
Bell Aire S.D.[1/]	0.423	233	51	77.8	180	285	28	89.5	99
South Bay Drainage									
Homestead Air Force Base	2.116	52	18	63.7	318	69	38	76.0	631
City of Homestead	0.893	174	31	82.7	222	258	42	84.7	306
South Dade Labor Camp	0.126	500	33	93.9	35	785	10	98.7	11
Redland Labor Camp[2/]	0.057	479	18	90.6	23	679	34	90.6	43
Leisure City[2/]	0.296	238	31	86.8	76	437	73	81.2	175
Atlantic Ocean									
Virginia Key-City of Miami	40.3	311	64	79.3	21,640	654	75	88.4	2,445
North Miami	13.5	64	-	-	722	115	-	-	12,978
Sunny Isles	1.5	144	-	-	1,804	91	-	-	1,140
Miami Beach	21.8	165	-	-	29,998	176	-	-	31,998

1/ Contributes 40 percent of load surface water, 60 percent to ground water.
2/ Ground water discharge.

Table A-2.--Average Efficiencies and Effluent Load for Major Municipal Waste Sources, Dade County, Florida--Continued
Chemical Oxygen Demand and Total Organic Load

Facility	Flow MGD	Chemical Oxygen Demand				Total Organic Carbon			
		Influent	Effluent	Percent removal	Load lb/day	Influent	Effluent	Percent removal	Load lb/day
Snapper Creek Drainage									
Peninsular Utilities	2.500	679	79	86.9	1,656	142	20	85.3	406
Southern Estates	1.428	501	106	78.0	1,253	96	31	67.6	362
Westwood Lakes	1.970	556	164	70.5	2,701	128	58	52.4	955
Black Creek Drainage									
South Miami Heights	1.089	2,051	95	95.0	854	264	11	84.4	272
Cutler Ridge	2.195	714	66	90.5	1,219	116	29	73.0	533
Bell-Aire S.D.[1/]	0.423	605	151	71.9	534	126	39	69.0	137
South Bay Drainage									
Homestead Air Force Base	2.116	446	60	84.1	1,045	44	18	56.7	309
City of Homestead	0.893	368	99	73.5	714	106	43	56.8	304
South Dake Labor Camp	0.126	3,069	227	92.9	239	335	18	94.6	19
Redlands Labor Camp[2/]	0.057	1,016	63	89.5	79	234	17	84.2	22
Leisure City[2/]	0.296	785	93	87.1	233	163	32	80.8	80
Atlantic Ocean									
Virginia Keys-City of Miami	40.3	791	172	77.9	57,580	239	50	78.4	16,720
North Miami	13.5	540	-	-	60,938	42	-	-	4,740
Sunny Isles	1.5	560	-	-	7,018	97	-	-	1,216
Miami Beach	21.8	522	-	-	94,905	70	-	-	12,726

1/ Contributes 40 percent to surface water, 60 percent to ground water
2/ Ground water discharge.

Table A-3.--Average Efficiencies and Effluent Load for Major Municipal Waste Sources, Dade County, Florida--Volatile Suspended Solids and Settleable Solids

Facility	Flow MGD	Volatile Suspended Solids				Settleable Solids	
		Influent	Effluent	Percent removal	Load lb/day	Influent	Effluent
Snake Creek Drainage							
Andover	1.714	119	12	70.0	209	9	0.1
Carol City	2.030	106	42	63.7	713	11	0.2
Riverdale Estates	0.362	425	162	60.0	468	27	4.0
Golden Isles	0.642	157	28	79.4	150	10	1.0
Myrtle Grove-City of North Miami	1.645	334	21	93.6	289	8.5	.1
Country Club of Miami	0.185	84	11	83.3	17	7	0.1
Palm Springs North S.D.	0.447	870	6	99.3	22	35	.1
Biscayne Canal and Little River Canal Drainage							
Miami Lakes Utilities	0.727	132	29	77.2	175	8	1.2
Seaboard Industrial Park	0.117	783	21	96.0	21	18	.1
Opa Locka Airport-Dade County Port Authority	0.183	99	12	88	18	4	.3
Miami River Drainage							
Atomic Sewerage	0.024	1,235	73	92.5	15	32	0.08
Doral Country Club	0.215	122	46	26.0	86	12	0.34
Coral Gables Waterway							
Lil' Abner Trailer Park	0.072	212	32	80.2	25	14	0.8
Pan American Hospital	0.036	134	29	53.8	8.7	15	0.1
Community Utilities	2.471	170	21	87.4	420	19	0.1
Snapper Creek Drainage							
Peninsular Utilities	2.500	344	34	90.6	701	7.5	0.1
Southern Estates	1.428	138	40	70.8	472	5	0.1
Westwood Lakes	1.970	743	47	93.7	774	13	0.3

68 V 89

Table A-3.--Average Efficiencies and Effluent Load for Major Municipal Waste Sources, Dade County, Florida--Volatile Suspended Solids and Settleable Solids--Continued

Facility	Flow MGD	Volatile Suspended Solids				Settleable Solids	
		Influent	Effluent	Percent removal	Load lb/day	Influent	Effluent
Black Creek Drainage							
South Miami Heights	1.089	923	75	85.0	668	19	0.1
Cutler Ridge	2.195	342	69	73.6	1,293	7	0.1
Bell Aire S.D.[1/]	0.423	250	23	94.6	81	9	0.1
South Bay Drainage							
Homestead Air Force Base	2.116	65	8.3	86.0	149	3	0.2
City of Homestead	0.893	181	34	82.3	248	8	0.1
South Dade Labor Camp	0.126	731	6	99.2	6	2	0.1
Redlands Labor Camp[2/]	0.057	652	28	91.9	35	9	0.5
Leisure City[2/]	0.296	413	71	81.7	169	9	0.2
Atlantic Ocean							
Virginia Key-City of Miami	40.3	580	61	89.8	19,100	10	0.1
North Miami	13.5	96	-	-	10,833	1.5	-
Sunny Isles	1.5	79	-	-	990	2	-
Miami Beach	21.8	130	-	-	23,635	8	-

1/ Contributes 40 percent to surface water, 60 percent to ground water.
2/ Ground water discharge.

Table A-3.--Average Efficiencies and Effluent Load for Major Municipal Waste Sources, Dade County, Florida--Volatile Suspended Solids and Settleable Solids

Facility	Flow MGD	Volatile Suspended Solids				Settleable Solids	
		Influent	Effluent	Percent removal	Load lb/day	Influent	Effluent
Snake Creek Drainage							
Andover	1.714	119	12	70.0	209	9	0.1
Carol City	2.030	106	42	63.7	713	11	0.2
Riverdale Estates	0.362	425	162	60.0	468	27	4.0
Golden Isles	0.642	157	28	79.4	150	10	1.0
Myrtle Grove-City of North Miami	1.645	334	21	93.6	289	8.5	.1
Country Club of Miami	0.185	84	11	83.3	17	7	0.1
Palm Springs North S.D.	0.447	870	6	99.3	22	35	.1
Biscayne Canal and Little River Canal Drainage							
Miami Lakes Utilities	0.727	132	29	77.2	175	8	1.2
Seaboard Industrial Park	0.117	783	21	96.0	21	18	.1
Opa Locka Airport-Dade County Port Authority	0.183	99	12	88	18	4	.3
Miami River Drainage							
Atomic Sewerage	0.024	1,235	73	92.5	15	32	0.08
Doral Country Club	0.215	122	46	26.0	86	12	0.34
Coral Gables Waterway							
Lil' Abner Trailer Park	0.072	212	32	80.2	25	14	0.8
Pan American Hospital	0.036	134	29	53.8	8.7	15	0.1
Community Utilities	2.471	170	21	87.4	420	19	0.1
Snapper Creek Drainage							
Peninsular Utilities	2.500	344	34	90.6	701	7.5	0.1
Southern Estates	1.428	138	40	70.8	472	5	0.1
Westwood Lakes	1.970	743	47	93.7	774	13	0.3

Table A-4.--Average Concentrations and Effluent Load for Major Municipal Waste Sources for Dade County, Florida
Nitrogen, Phosphorus and Chlorides

Facility	Flow MGD	Kjeldahl Nitrogen as N		Ammonia Nitrogen as N		Organic Nitrogen as N		NO_2+NO_3 as N		Total Phosphorus as P		Chloride
		Effluent mg/l	Load lb/day	Effluent mg/l	Load lb/day	Effluent mg/l	Load lb/day	Effluent mg/l	Load lb/day	Effluent mg/l	Load lb/day	mg/l
Snake Creek Drainage												
Andover	1.714	5.6	79	3.8	53	1.8	26	10.0	140	7.6	107	67
Carol City	2.030	21.8	368	17.4	296	4.3	73	2.2	37	9.0	154	36
Riverside Estates	0.362	11.0	31	1.9	6	9.0	25	16.0	46	16.4	50	43
Golden Isles	0.642	24.0	129	21.4	115	2.6	14	0.08	0.4	11.1	60	114
Myrtle Grove-City of North Miami	1.645	25.6	352	23.3	320	2.3	32	0.01	0.1	10.8	149	69
Country Club of Miami	0.185	1.8	2.8	0.5	0.8	1.3	2	1.3	2.0	6.8	11	30
Palm Springs North S.D.	0.447	26.3	98	25	93	1.3	4	0.5	2.0	13.7	51	68
Biscayne Canal and Little River Canal Drainage												
Miami Lakes Utilities	0.727	18.0	109	13.9	84	4.1	25	1.7	10.0	13.0	80	75
Seaboard Industrial Park	0.117	3.1	3	4.7	5	3.7	4	0.05	0.05	6.6	7	62
Opa Locka Airport-Dade County Port Authority	0.183	4.8	7.3	1.88	2.9	N.D.	N.D.	25.0	38.2	9.2	14.1	192
Miami River Drainage												
Atomic Sewerage	0.024	19.0	4	8.0	2	11.0	2	0.3	0.1	7.5	2	116
Doral Country Club	0.215	10.8	19	5.0	9	5.8	10	1.3	3	6.7	13	55
Coral Gables Waterway												
Lil' Abner Trailer Park	0.072	26.7	16	19.5	12	7.2	4	0.6	0.1	15.2	9	79
Pan American Hospital	0.036	1.9	0.6	0.7	0.2	1.2	0.4	12.4	4	2.1	0.6	118
Community Utilities	2.471	15.3	315	14.5	300	0.8	16	4.4	90	7.2	149	46
Snapper Creek Drainage												
Peninsular Utilities	2.500	20.5	427	19.4	405	1.3	27	0.02	0.1	9.4	195	36
Southern Estates	1.428	13.5	161	11.4	135	2.2	26	0.9	10	8.7	104	45
Westwood Lakes	1.970	25.1	413	19.2	316	5.9	97	0.26	4	11.8	194	57

Table A-3.--Average Efficiencies and Effluent Load for Major Municipal Waste Sources, Dade County, Florida--Volatile Suspended Solids and Settleable Solids--Continued

Facility	Flow MGD	Volatile Suspended Solids				Settleable Solids	
		Influent	Effluent	Percent removal	Load lb/day	Influent	Effluent
Black Creek Drainage							
South Miami Heights	1.089	923	75	85.0	668	19	0.1
Cutler Ridge	2.195	342	69	73.6	1,293	7	0.1
Bell Aire S.D.[1/]	0.423	250	23	94.6	81	9	0.1
South Bay Drainage							
Homestead Air Force Base	2.116	65	8.3	86.0	149	3	0.2
City of Homestead	0.893	181	34	82.3	248	8	0.1
South Dade Labor Camp	0.126	731	6	99.2	6	2	0.1
Redlands Labor Camp[2/]	0.057	652	28	91.9	35	9	0.5
Leisure City[2/]	0.296	413	71	81.7	169	9	0.2
Atlantic Ocean							
Virginia Key-City of Miami	40.3	580	61	89.8	19,100	10	0.1
North Miami	13.5	96	-	-	10,833	1.5	-
Sunny Isles	1.5	79	-	-	990	2	-
Miami Beach	21.8	130	-	-	23,635	8	-

1/ Contributes 40 percent to surface water, 60 percent to ground water.
2/ Ground water discharge.

Table A-4.--Average Concentrations and Effluent Load for Major Municipal Waste Sources for Dade County, Florida
Nitrogen, Phosphorus and Chlorides--Continued

Facility	Flow MGD	Kheldahl Nitrogen as N		Ammonia Nitrogen as N		Organic Nitrogen as N		NO_2+NO_3 as N		Total Phosphorus as P		Chloride
		Effluent mg/l	Load lb/day	Effluent mg/l	Load lb/day	Effluent mg/l	Load lb/day	Effluent mg/l	Load lb/day	Effluent mg/l	Load lb/day	mg/l
Black Creek Drainage												
South Miami Heights	1.089	22.2	202	18.0	164	4.2	38	1.1	10	13.6	123	N.D.[3]
Cutler Ridge	2.195	9.3	172	7.4	135	2.0	37	0.9	18	10.0	185	69
Bell Aire S.D.[1]	0.423	24.1	85	19.9	70	4.2	15	0.8	3	10.2	36	40
South Bay Drainage												
Homestead Air Force Base	2.116	3.5	60	2.0	34	1.5	25	6.8	119	6.9	119	119
City of Homestead	0.893	14.4	104	11.3	82	3.1	22	5.7	42	13.6	98	72
South Dade Labor Camp	0.126	13.3	14	8.5	9	4.9	5	2.3	2	7.4	2	47
Redlands Labor Camp[2]	0.057	4.4	6	2.3	3	2.1	3	10.6	13	9.0	11	43
Leisure City[2]	0.296	43.4	107	13.1	33	30.3	75	0.7	2	19.8	49	53
Atlantic Ocean												
Virginia Key-City of Miami	40.3	19.0	6,392	14.1	4,744	5.1	1,716	0.06	20	8.6	2,890	1,048
North Miami	13.5	12.7	1,433	6.5	734	6.2	700	.013	1.5	4.6	519	
Sunny Isles	1.5	38.4	481	26.4	331	12.0	78	0.025	.3	8.0	100	1,353
Miami Beach	21.8	26.4	4,799	19.0	3,454	7.4	1,349	0.048	8	8.8	1,599	979

1/ Contributes 40 percent to surface water, 60 percent to ground water.
2/ Ground water discharge.
3/ No data.

Table A-4.--Average Concentrations and Effluent Load for Major Municipal Waste Sources for Dade County, Florida
Nitrogen, Phosphorus and Chlorides

Facility	Flow MGD	Kjeldahl Nitrogen as N		Ammonia Nitrogen as N		Organic Nitrogen as N		NO_2+NO_3 as N		Total Phosphorus as P		Chloride
		Effluent mg/l	Load lb/day	Effluent mg/l	Load lb/day	Effluent mg/l	Load lb/day	Effluent mg/l	Load lb/day	Effluent mg/l	Load lb/day	mg/l
Snake Creek Drainage												
Andover	1.714	5.6	79	3.8	53	1.8	26	10.0	140	7.6	107	67
Carol City	2.030	21.8	368	17.4	296	4.3	73	2.2	37	9.0	154	36
Riverside Estates	0.362	11.0	31	1.9	6	9.0	25	16.0	46	16.4	50	43
Golden Isles	0.642	24.0	129	21.4	115	2.6	14	0.08	0.4	11.1	60	114
Myrtle Grove-City of North Miami	1.645	25.6	352	23.3	320	2.3	32	0.01	0.1	10.8	149	69
Country Club of Miami	0.185	1.8	2.8	0.5	0.8	1.3	2	1.3	2.0	6.8	11	30
Palm Springs North S.D.	0.447	26.3	98	25	93	1.3	4	0.5	2.0	13.7	51	68
Biscayne Canal and Little River Canal Drainage												
Miami Lakes Utilities	0.727	18.0	109	13.9	84	4.1	25	1.7	10.0	13.0	80	75
Seaboard Industrial Park	0.117	3.1	3	4.7	5	3.7	4	0.05	0.05	6.6	7	62
Opa Locka Airport-Dade County Port Authority	0.183	4.8	7.3	1.88	2.9	N.D.	N.D.	25.0	38.2	9.2	14.1	192
Miami River Drainage												
Atomic Sewerage	0.024	19.0	4	8.0	2	11.0	2	0.3	0.1	7.5	2	116
Doral Country Club	0.215	10.8	19	5.0	9	5.8	10	1.3	3	6.7	13	55
Coral Gables Waterway												
Lil' Abner Trailer Park	0.072	26.7	16	19.5	12	7.2	4	0.6	0.1	15.2	9	79
Pan American Hospital	0.036	1.9	0.6	0.7	0.2	1.2	0.4	12.4	4	2.1	0.6	118
Community Utilities	2.471	15.3	315	14.5	300	0.8	16	4.4	90	7.2	149	46
Snapper Creek Drainage												
Peninsular Utilities	2.500	20.5	427	19.4	405	1.3	27	0.02	0.1	9.4	195	36
Southern Estates	1.428	13.5	161	11.4	135	2.2	26	0.9	10	8.7	104	45
Westwood Lakes	1.970	25.1	413	19.2	316	5.9	97	0.26	4	11.8	194	57

Table A-5.--Median MPN and Average of Field Observations for Municipal Waste Source in Dade County, Florida

Facility	Flow MGD	Coliform		Influent		Effluent		
		Total MPN	Fecal MPN	Temperature °C.	pH S.U.	Temperature °C	pH S.U.	Chlorine Residual
Snake Creek Drainage								
Andover	1.714	20	18	26	7.6	24	6.8	2.0
Carol City	2.030	18	18	26	7.3	25	6.9	4.0
Riverdale Estates	0.362	18	18	26	7.5	23	4.6	6.8
Golden Isles	0.642	18	18	25	7.2	24	6.5	2.3
Myrtle Grove-City of North Miami	1.645	18	18	25	7.0	23	6.6	2.2
Country Club of Miami	0.185	20	18	24	6.5	23	6.5	1.0
Palm Springs North S.D.	0.447	18	18	25	7.2	23	6.7	1.8
Biscayne Canal and Little River Canal Drainage								
Miami Lakes Utilities	0.727	2,700,000	350,000	26	8.3	26	8.1	2.6
Seaboard Industrial Park	0.117			26	7.1	23	6.0	3.5
Opa Locka Airport-Dade County Port Authority	0.183			23	6.7	21	6.4	0
Miami River Drainage								
Atomic Sewerage	0.024	18	18	25	7.8	23	7.410	
Doral Country Club	0.215	20	20	29	6.8	28	6.8	4.2
Coral Gables Waterway								
Lil' Abner Trailer Park[1/]	0.072			25	7.8	22	6.6	N.D.
Pan American Hospital	0.036	18	18	29	7.3	25	5.7	3.4
Community Utilities	2.471	18	18	26	9.7	26	9.8	2.0
Snapper Creek Drainage								
Peninsular Utilities	2.500			26	8.3	25	8.1	4.4
Southern Estates	1.428	620	1,100	25	8.4	24	8.1	2.8
Westwood Lakes	1.970			24	7.8	23	6.7	2.5

Table A-5.--Median MPN and Average of Field Observations for Municipal Waste Source in Dade County, Florida--Continued

Facility	Flow MGD	Coliform Total MPN	Coliform Fecal MPN	Influent Temperature °C	Influent pH S.U.	Effluent Temperature °C	Effluent pH S.U.	Effluent Chlorine Residual
Black Creek Drainage								
South Miami Heights	1.089	410	32	26	7.2	27	7.0	1.1
Cutler Ridge	2.195	18	18	27	7.1	27	7.0	1.8
Bell Aire S.D.[2/]	0.423			24	7.4	22	6.6	1.5
South Bay Drainage								
Homestead Air Force Base	2.116	170	45	25	7.2	25	6.9	.5
City of Homestead	0.893	490	93	26	7.7	26	7.4	2.2
South Dade Labor Camp	0.126			23	6.7	21	6.5	3.3
Redland Labor Camp[3/]	0.057	18	18	26	7.3	25	7.3	2.3
Leisure City[3/]	0.296	40	18					
Atlantic Ocean								
Virginia Key-City of Miami	40.3	1,300	78	28	6.8	28	6.8	0.4
North Miami	13.5	ND	ND	ND	ND	ND	ND	ND
Sunny Isles	1.5	ND	ND	ND	ND	ND	ND	ND
Miami Beach	21.8	ND	ND	ND	ND	ND	ND	ND

1/ Single sample.
2/ Contributes 40 percent to surface water, 60 percent to ground water.
3/ Ground water discharge.
ND Not determined.

GPO 834-301

Table A-6.--Average Efficiencies and Effluent Load for Minor Wastewater Treatment Plants, Dade County, Florida

Biochemical Oxygen Demand and Total Suspended Solids

	Sewage Treatment Plant	Flow MGD	Biochemical Oxygen Demand				Total Suspended Solids			
			Inf. mg/l	Eff. mg/l	Removal %	Load lbs/day	Inf. mg/l	Eff. mg/l	Removal %	Load lbs/day
	A. Atlantic Ocean & Biscayne Bay									
A-1	Coast Guard Station	0.0144	390	8	97.9	0.96	156	112	28.2	13.45
A-2	Shores Condominium	0.0200	333	59	82.3	9.84	200	80	60.0	13.34
	B. Snake Creek									
B-1	Dade Christian Schools	0.0150	136	42	69.1	5.25	72	13	81.9	1.63
	C. Biscayne Canal & Little River									
C-1	Food Fair Store #291	0.0150	276	3	98.9	0.38	896	46	94.9	5.75
C-2	Barry College	0.0300	204	29	85.8	7.26	356	46	87.0	11.51
C-3	Monsignor Pace High School	0.0300	130	17	86.9	4.25	104	34	67.3	8.51
C-4	Del-Ray Gardens	0.0060	225	12.5	94.4	0.62	124	14	88.7	0.70
C-5	Palm Springs Hospital	0.0140	152	29.0	80.9	3.39	202	21	89.6	2.45
C-6	Palm Springs Garden Condominium	0.0200	173.3	40.6	76.8	6.50	212	75.5	64.1	12.00
	D. Miami River									
D-1	Winn Dixie Stores	--	>770	--	--	--	2488	--	--	--
D-2	Hialeah City Hall	0.0400	272	26	90.4	8.68	296	52	82.4	17.35
D-3	Hialeah Hospital	0.0900	296	23	92.2	17.26	148	13	91.2	9.76
D-4	Hialeah Convalesent	0.0250	304	94	69.1	19.60	238	142	40.3	29.61

Table A-6.--Average Efficiencies and Effluent Load for Minor Wastewater Treatment Plants, Dade County, Florida

Biochemical Oxygen Demand and Total Suspended Solids --Continued

	Sewage Treatment Plant	Flow MGD	Biochemical Oxygen Demand				Total Suspended Solids			
			Inf. mg/l	Eff. mg/l	Removal %	Load lbs/day	Inf. mg/l	Eff. mg/l	Removal %	Load lbs/day
D-5	Kings Inn	0.0200	71.9	11.5	84.0	1.92	50	26	48.0	4.34
D-6	Holiday Inn	0.0250	194	1.96	98.7	0.41	40	10.4	74.0	2.17
D-7	Airport Lanes	0.0110	244	7	97.2	0.62	134	10	92.5	0.92
D-8	Midway Mall	0.0600	259	4	98.3	2.25	384	47	87.8	23.50
D-9	Air Traffic Control	0.0090	552	2.8	99.5	0.21	512	80	84.4	6.0
D-10	Howard Johnsons	0.0250	375	7.8	97.9	1.63	500	13	97.4	2.71
D-11	My-Am-Ee Trailer Park	0.0300	575	21.5	96.3	5.38	840	25	97.0	6.26
D-12	Blue Lake Trailer Park	0.0340	212	4.0	98.0	1.19	404	52	87.1	14.74
D-13	Medley Mobile Park	0.0030	241	10.0	95.9	0.25	122	27	77.9	0.68
D-14	Saratoga Springs Apartments	0.0130	159	76.0	52.2	8.24	776	88	88.7	9.54
D-15	Queen's Inn Hotel	--	73	10.0	86.3	--	102	20	80.4	--
D-16	79th Street Shopping Center	--	249	18.0	92.8	--	228	28	87.7	--
D-17	American Hospital Supply	0.0300	77	5.2	93.2	1.30	16	12	25.0	3.0
D-18	Miami Springs High School	0.0200	234	66.0	71.8	11.00	138	130	5.8	21.68
D-19	Country Club Garden Apartments	0.0200	251	3.8	98.5	0.63	198	27	86.4	4.50
	E. Coral Gables Waterway									
E-1	Westchester Hospital	0.0150	665	15	97.8	1.82	800	114	85.8	14.26

Table A-6.--Average Efficiencies and Effluent Load for Minor Wastewater Treatment Plants, Dade County, Florida

Biochemical Oxygen Demand and Total Suspended Solids --Continued

	Sewage Treatment Plant	Flow MGD	Biochemical Oxygen Demand				Total Suspended Solids			
			Inf. mg/l	Eff. mg/l	Removal %	Load lbs/day	Inf. mg/l	Eff. mg/l	Removal %	Load lbs/day
E-2	Goldberg Apartments	0.0100	212	8.5	96.0	0.71	108	22	79.6	1.83
E-3	Biltmore Hotel	---	10	1.2	88.0	--	26	10	61.5	--
E-4	Ludlam Plaza Apartments	0.0125	177	0.4	99+	0.4	12	12	0	1.25
	F. Snapper Creek									
F-1	Florida Portland Cement	0.0045	77	8	89.6	0.3	452	14	96.9	0.52
F-2	Jade Garden Apartments	--	531	5	99.1	--	4116	14	99.7	--
F-3	Miller Lake Apartments	0.0030	158	46	70.9	1.15	124	26	79	0.65
F-4	Lakeview Garden Apartments	0.0300	219	24	89.0	6.0	72	26	63.9	6.5
F-5	Kendale Lakes	0.0500	192	6	96.9	2.5	92	10	89.1	4.2
F-6	Kendale Complex	--	313	47	85.0	--	90	98	--	--
	G. Black Creek									
G-1	Camp Matecumbe	0.0350	130	7	94.5	2.10	104	10	90.4	2.90
G-2	Casa Granada Apartments	0.0200	179	6	96.4	1.07	208	6	97.1	1.00
G-3	El Rancho Apartments	0.0200	242	9	96.5	1.43	232	13	94.4	2.17
G-4	Naval Air Station	--	39.5	27	31.6	--	48	26	45.8	--
	H. South Bay									
H-1	Redlands Mobile Home Park	0.0150	365	17.4	95.2	2.18	332	21	93.7	2.63

Table A-6.--Average Efficiencies and Effluent Load for Minor Wastewater Treatment Plants Dade County, Florida

Biochemical Oxygen Demand and Total Suspended Solids--Continued

	Sewage Treatment Plant	Flow MGD	Biochemical Oxygen Demand				Total Suspended Solids			
			Inf. mg/l	Eff. mg/l	Removal %	Load lbs/day	Inf. mg/l	Eff. mg/l	Removal %	Load lbs/day
H-2	Helman Court Apartments	0.0250	>717	24	>96.7	4.98	496	166	66.5	34.60
H-3	Sweden House	0.0200	63	17.5	72.2	2.92	14	4	71.4	0.67
H-4	Steak & Brew Resturant	0.0150	>1240	10	>99.2	1.29	2790	30	98.9	3.75
H-5	Sea Glades Motel	--	133	23	82.7	--	90	30	67	--

Table A-7.--Average Efficiencies and Effluent Load for Minor Wastewater Treatment Plants, Dade County, Florida

Chemical Oxygen Demand and Total Organic Carbon

	Sewage Treatment Plant	Flow MGD	Chemical Oxygen Demand				Total Organic Carbon			
			Inf. mg/l	Eff. mg/l	Removal %	Load lbs/day	Inf. mg/l	Eff. mg/l	Removal %	Load lbs/day
	A. Atlantic Ocean & Biscayne Bay									
A-1	Coast Guard Station	0.0144	630	68	86.0	10.57	154	24	84.4	2.88
A-2	Shores Condominium	0.0200	713	223	68.7	37.20	165	55	66.7	9.17
	B. Snake Creek									
B-1	Dade Christian Schools	0.0150	573	120	79.1	15.01	110	27	75.5	3.38
	C. Biscayne Canal & Little River									
C-1	Food Fair #291	0.0150	604	60	90.1	7.50	155	15	90.3	1.88
C-2	Barry College	0.0300	636	66	89.6	16.52	65	21	67.7	5.25
C-3	Monsignor Pace High School	0.0300	666	57	91.4	14.26	105	19	81.9	4.75
C-4	Del-Ray Gardens	0.0060	803	31	96.1	1.55	165	5	97.3	0.25
C-5	Palm Springs Hospital	0.0140	718	137	80.9	16.00	72	44	39.3	5.13
C-6	Palm Springs Garden Condominium	0.0200	594	98	83.5	16.00	85.2	21.3	74.3	3.5
	D. Miami River									
D-1	Winn Dixie Stores	--	4218	--	--	--	1160	--	--	--
D-2	Hialeah City Hall	0.0400	800	134	83.2	44.7	125	44	64.8	14.68
D-3	Hialeah Hospital	0.0900	646	292	54.8	219.18	155	18	88.4	13.51
D-4	Hialeah Convalesent	0.0250	745	264	64.6	55.04	115	85	26.1	17.72

Table A-7.--Average Efficiencies and Effluent Load for Minor Wastewater Treatment Plants, Dade County, Florida

Chemical Oxygen Demand and Total Organic Carbon--Continued

	Sewage Treatment Plant	Flow MGD	Chemical Oxygen Demand				Total Organic Carbon			
			Inf. mg/l	Eff. mg/l	Removal %	Load lbs/day	Inf. mg/l	Eff. mg/l	Removal %	Load lbs/day
D-5	Kings Inn	0.0200	297	69	76.8	11.51	50	28	44.0	4.67
D-6	Holiday Inn	0.0250	534	46	91.4	9.59	118	16	86.4	3.34
D-7	Airport Lanes	0.0110	470	34	92.8	3.12	113	10	91.2	0.92
D-8	Midway Mall	0.0600	659	38	94.2	19.00	158	9	94.3	4.50
D-9	Air Traffic Control	0.0090	1135	40	96.5	3.00	340	9	97.4	0.68
D-10	Howard Johnsons	0.0250	1460	66	95.9	13.76	202.5	27	86.7	5.63
D-11	My-Am-Ee Trailer Park	0.0300	2395	100	95.8	25.00	230	57	75.2	14.26
D-12	Blue Lake Trailer Park	0.0340	679	54	92.1	15.31	105	20	81.0	5.67
D-13	Medley Mobile Home Park	0.0030	747	54	92.8	1.35	118	24	79.7	0.60
D-14	Saratoga Springs Apartments	0.0130	939	154	83.4	16.69	145	45	69.0	4.88
D-15	Queens Inn Hotel	--	245	69	71.8	--	37	14	62.2	--
D-16	79th Street Shopping Center	--	967	79	91.8	--	145	20	86.2	--
D-17	American Hospital Supply	0.0300	134	39	70.9	9.76	125	13	89.6	3.25
D-18	Miami Springs High School	0.0200	638	221	65.4	36.86	135	55	59.3	9.17
D-19	Country Club Garden Apartments	0.0200	648	35	94.6	5.84	160	13	91.9	2.17
	E. Coral Gables Waterway									
E-1	Westchester Hospital	0.0150	479	475	0.8	59.42	200	32	83.8	4.06

Table A-7.--Average Efficiencies and Effluent Load for Minor Wastewater Treatment Plants, Dade County, Florida

Chemical Oxygen Demand and Total Organic Carbon--Continued

	Sewage Treatment Plant	Flow MGD	Chemical Oxygen Demand				Total Organic Carbon			
			Inf. mg/l	Eff. mg/l	Removal %	Load lbs/day	Inf. mg/l	Eff. mg/l	Removal %	Load lbs/day
E-2	Goldberg Apartments	0.0100	626	91	85.5	7.59	135	20	85.2	1.67
E-3	Biltmore Hotel	--	575	17	97.0	--	11	11	0	--
E-4	Ludlam Plaza Apartments	0.0125	483	43	91.1	4.48	78	18	76.9	1.88
	F. Snapper Creek									
F-1	Florida Portland Cement	0.0045	507	95	81.3	3.56	175	41	76.6	1.54
F-2	Jade Garden Apartments	--	8671	49	99.4	--	1125	22	98.0	--
F-3	Miller Lake Apartments	0.0030	397	136	65.7	3.4	60	42	30	1.05
F-4	Lakeview Garden Apartments	0.0300	601	34	94.3	8.5	250	13	94.8	3.25
F-5	Kendale Lakes	0.0500	480	26	94.6	10.87	145	15	98.7	6.3
F-6	Kendale Complex	--	714	177	75	--	155	85	45.0	--
	G. Black Creek									
G-1	Camp Matecumbe	0.0350	572	24	95.8	7.00	92	9	90.3	2.63
G-2	Casa Granada Apartments	0.0200	565	26	95.4	4.34	95	22	76.3	3.75
G-3	El Rancho Apartments	0.0200	626	28	95.5	4.67	262	30	88.4	5.09
G-4	Naval Air Station	--	624	66	89.4	--	37	12	67.6	--
	H. South Bay									
H-1	Redlands Mobile Home Park	0.0150	680	61	91.0	7.63	92.5	24	74.1	3.0
H-2	Helman Court Apartments	0.0250	1526	86	94.5	17.90	350	19	94.6	3.96

Table A-7.--Average Efficiencies and Effluent Load for Minor Wastewater Treatment Plants, Dade County, Florida

Chemical Oxygen Demand and Total Organic Carbon--Continued

	Sewage Treatment Plant	Flow MGD	Chemical Oxygen Demand				Total Organic Carbon			
			Inf. mg/l	Eff. mg/l	Removal %	Load lbs/day	Inf. mg/l	Eff. mg/l	Removal %	Load lbs/day
H-3	Sweden House	0.0200	498	44	91.2	7.34	25.5	37.5	--	6.26
H-4	Steak & Brew Resturant	0.0150	20,533	53	99.7	6,63	2400	20	99.2	2.50
H-5	Sea Glades Motel	--	370	131	64.6	--	65	34	47.7	--

Table A-8.--Average Efficiencies and Effluent Load for Minor Wastewater Treatment Plants, Dade County, Florida

Volatile Suspended Solids and Settleable Solids

	Sewage Treatment Plant	Flow MGD	Volatile Suspended Solids				Settleable Solids		
			Inf. mg/l	Eff. mg/l	Removal %	Load lbs/day	Inf. mg/l	Eff. mg/l	Removal %
	A. Atlantic Ocean & Biscayne Bay								
A-1	Coast Guard	0.0144	138	92	33.3	11	2.5	0	100
A-2	Shores Condominium	0.0200	180	36	80.0	6.0	2.5	4.0	--
	B. Snake Creek								
B-1	Dade Christian Schools	0.0150	--	--	--	--	0.3	0	100
	C. Biscayne Canal & Little River								
C-1	Food Fair Store #291	0.0150	36	36	0	4.5	0.0	0.0	--
C-2	Barry College	0.0300	236	36	84.8	9.0	5.0	0.3	94
C-3	Monsignor Pace High School	0.0300	--	--	--	--	0.2	0.1	50.0
C-4	Del-Ray Gardens	0.0060	110	13.4	87.8	0.7	0.2	0	100
C-5	Palm Springs Hospital	0.0140	192	17	91.1	2.0	3.0	0.1	96.7
C-6	Palm Springs Garden Condominium	0.0200	109	100.5	17.8	17.5	3.0	0	100
	D. Miami River								
D-1	Winn-Dixie Stores	--	0	--	--	--	7.5	--	--
D-2	Hialeah City Hall	0.0400	--	--	--	--	15.0	0.1	99.3
D-3	Hialeah Hospital	0.0900	--	--	--	--	2.5	0	100
D-4	Hialeah Convalesent	0.0250	--	--	--	--	1.0	5.0	--

Table A-8.--Average Efficiencies and Effluent Load for Minor Wastewater Treatment Plants, Dade County, Florida

Volatile Suspended Solids and Settleable Solids -- Continued

	Sewage Treatment Plant	Flow MGD	Volatile Suspended Solids				Settleable Solids		
			Inf. mg/l	Eff. mg/l	Removal %	Load lbs/day	Inf. mg/l	Eff. mg/l	Removal %
D-5	Kings Inn	0.0200	22	3	86.4	0.5	2.5	NIL	100
D-6	Holiday Inn	0.0250	20	8	60.0	1.7	3.5	0.1	97.1
D-7	Airport Lanes	0.0110	88	8	90.9	0.7	0.5	0.0	100
D-8	Midway Mall	0.0600	84	43	48.8	21.5	3.0	0.0	100
D-9	Air Traffic Control	0.0090	12	11	8.3	0.8	>40	0.0	100
D-10	Howard Johnsons	0.0250	430.5	12	97.2	2.5	16	0.1	99.4
D-11	My-Am-Ee	0.0300	740	27	96.4	6.8	740	0.2	99.9
D-12	Blue Lake Trailer Park	0.0340	392	40	89.8	11.34	1.4	0.7	50.0
D-13	Medley Mobile Home Park	0.0030	116	24	79.3	0.6	0.7	0.1	85.7
D-14	Saratoga Springs Apartments	0.0130	760	112	85.3	12.1	5	0.5	90
D-15	Queens Inn Hotel	--	52	12	76.9	--	0.5	0	100
D-16	79th Street Shopping Center	--	192	20	89.6	--	4	0	100
D-17	American Hospital Supply	0.0300	12	8	33.3	2.0	0.2	0	100
D-18	Miami Springs High School	0.0200	94	82	12.8	13.7	2.5	3.0	--
D-19	Country Club Garden Apartments	0.0200	126	20	84.1	3.3	2.5	0	100
	E. Coral Gables Waterway								
E-1	Westchester Hospital	0.0150	740	104	86.0	13.01	>40.0	0.2	99.5

Table A-8.--Average Efficiencies and Effluent Load for Minor Wastewater Treatment Plants, Dade County, Florida

Volatile Suspended Solids and Settleable Solids -- Continued

	Sewage Treatment Plant	Flow MGD	Volatile Suspended Solids				Settleable Solids		
			Inf. mg/l	Eff. mg/l	Removal %	Load lbs/day	Inf. ml/l	Eff. ml/l	Removal %
E-2	Goldberg Apartments	0.0100	96	18	81.5	1.5	0	0	---
E-3	Biltmore Hotel	--	20	6	70.0	--	0.1	0	100
E-4	Ludlam Plaza Apartments	0.0125	10	8	20.0	0.83	0.1	0	100
	F. Snapper Creek Canal								
F-1	Florida Portland Cement	0.0045	424	4	99.1	0.15	0.8	0	100
F-2	Jade Gardens Apartments	--	3768	10	99.7	--	18	0.1	99.4
F-3	Miller Lake Apartments	0.0030	96	14	85.4	0.35	2	0	100
F-4	Lakeview Garden Apartments	0.0300	56	12	78.6	3.0	0.3	0	100
F-5	Kendale Lakes	0.0500	68	6	91.2	2.5	6	0	100
F-6	Kendale Complex	--	66	90	--	--	0.5	0.2	60
	G. Black Creek								
G-1	Camp Matecumbe	0.0350	84	8	90.5	2.34	0.5	0.1	80.0
G-2	Casa Granada Apartments	0.0200	176	2	98.9	0.33	3.0	0	100
G-3	El Rancho Apartments	0.0200	152	6	96.1	1.0	6.0	0	100
G-4	Naval Air Station	--	34	12	64.7	--	0.5	0	100
	H. South Bay								
H-1	Redlands Mobile Home Park	0.0150	86	14	83.7	1.75	6	NIL	100

Table A-8.--Average Efficiencies and Loadings for Minor Wastewater Treatment Plants in Dade County, Florida

Volatile Suspended Solids and Settleable Solids--Continued

	Sewage Treatment Plant	Flow MGD	Volatile Suspended Solids				Settleable Solids		
			Inf. mg/l	Eff. mg/l	Removal %	Load lbs/day	Inf. mg/l	Eff. mg/l	Removal %
H-2	Helman Court Apartments	0.0250	448	156	65.2	32.50	4.0	0.1	97.5
H-3	Sweden House	0.0200	6	4	33.3	0.68	1	NIL	100
H-4	Steak & Brew Resturant	0.0150	2770	16	99.4	2.0	>40.0	0	100
H-5	Sea Glades Motel	--	92	21	77	--	6	0.1	98.3

Table A-9.--Average Effluent Concentrations and Effluent Load for Minor Wastewater Treatment Plants, Dade County, Florida

Nitrogen and Phosphorus

	Sewage Treatment Plant	Flow MGD	Kjeldahl Nitrogen		Ammonia Nitrogen		Organic Nitrogen		Nitrite Nitrate N		Total Phosphorus	
			Conc. mg/l	Load lbs/day	Conc. mg/l	Load lbs/day	Conc. mg/l	Load lbs/day	Conc. mg/l	Load lbs/day	Conc. mg/l	Load lbs/day
	A. Atlantic Ocean & Biscayne Bay											
A-1	Coast Guard Station	0.0144	3.5	0.42	1.8	0.22	1.7	0.20	9.8	1.18	12.1	1.45
A-2	Shores Condominium	0.0200	20.2	3.37	1.0	0.17	19.2	3.20	0.2	0.03	10.4	1.73
	B. Snake Creek											
B-1	Dade Christian Schools	0.0150	9.5	1.19	8.0	1.00	1.5	0.19	136.0	17.01	6.5	0.81
	C. Biscayne Canal & Little River											
C-1	Food Fair Store #291	0.0150	2.2	0.28	0.3	0.04	1.9	0.24	15.0	1.88	5.6	0.70
C-2	Barry College	0.0300	5.9	1.48	3.4	0.85	2.5	0.62	11.4	2.85	9.3	2.32
C-3	Monsignor Pace High School	0.0300	7.3	1.83	6.0	1.50	1.3	0.32	28.5	7.13	8.5	2.13
C-4	Del-Ray Gardens	0.0060	1.1	0.055	0.02	0.001	1.08	0.054	0.6	0.03	7.2	0.36
C-5	Palm Springs Hospital	0.0140	18.1	2.11	6.6	0.77	11.5	1.34	0.2	0.023	9.8	1.14
C-6	Palm Springs Garden Condominium	0.0200	17.7	3.00	15.3	2.50	2.4	0.50	2.7	0.50	9.6	1.50
	D. Miami River											
D-1	Winn Dixie Stores	--	--	--	--	--	--	--	--	--	--	--
D-2	Hialeah City Hall	0.0400	14.6	4.87	12.0	4.0	2.6	0.87	4.0	1.33	7.1	2.37
D-3	Hialeah Hospital	0.0900	8.1	6.08	9.0	6.76	None	--	10.5	7.80	7.0	5.25
D-4	Hialeah Convalescent Home	0.0250	25.5	5.32	19.0	3.96	6.5	1.36	0.5	0.10	6.1	1.27

Table A-9.--Average Effluent Concentrations and Effluent Load for Minor Wastewater Treatment Plants, Dade County, Florida

Nitrogen and Phosphorus -- Continued

	Sewage Treatment Plant	Flow MGD	Kjeldahl Nitrogen		Ammonia Nitrogen		Organic Nitrogen		Nitrate Nitrate N		Total Phosphorus	
			Conc. mg/l	Load lbs/day	Conc. mg/l	Load lbs/day	Conc. mg/l	Load lbs/day	Conc. mg/l	Load lbs/day	Conc. mg/l	Load lbs/day
D-5	Kings Inn	0.0200	14.0	2.34	11.2	1.87	2.8	0.47	13.0	2.17	5.2	0.87
D-6	Holiday Inn	0.0250	20.2	4.21	16.8	3.50	3.4	0.71	1.8	0.38	8.8	1.83
D-7	Airport Lanes	0.0100	8.4	0.77	7.8	0.72	0.6	0.055	20.0	1.84	6.6	0.60
D-8	Midway Mall	0.0600	1.7	0.85	1.0	0.50	0.7	0.35	3.4	1.70	0.8	0.40
D-9	Air Traffic Control	0.0090	14.8*	1.11	20.0*	1.50	--	--	120.0	9.00	2.8	0.21
D-10	Howard Johnsons	0.0250	10.6	2.21	9.6	2.00	1.0	0.20	3.2	0.67	1.7	0.35
D-11	My-Am-Ee Mobile Home Park	0.0300	11.8	2.95	8.9	2.23	2.9	0.73	0.2	0.05	15.3	3.83
D-12	Blue Lakes Trailer Park	0.0340	3.1	0.88	0.5	0.14	2.6	0.74	1.6	0.45	14.3	4.05
D-13	Medley Mobile Home Court	0.0030	3.4	0.08	2.2	0.06	1.2	0.03	0.4	0.01	8.8	0.22
D-14	Saratoga Springs Apartments	0.0130	10.5	1.14	2.8	0.30	7.7	0.83	12.4	1.34	6.9	0.75
D-15	Queens Inn Hotel	--	26.2	--	18.4	--	7.8	--	0.1	--	5.8	--
D-16	79th Street Shopping Center	--	2.4	--	0.2	--	2.2	--	40.0	--	24.0	--
D-17	American Hospital Supply	0.0300	1.3	0.32	0.8	0.20	0.5	0.12	3.8	0.95	0.4	0.10
D-18	Miami Springs High School	0.0200	55.1	9.19	43.2	7.20	11.9	1.98	0.03	0.005	9.0	1.50
D-19	Country Club Garden Apartments	0.0200	2.1	0.35	0.5	0.083	1.6	0.267	7.8	1.30	5.5	0.92
	E. Coral Gables Waterway											
E-1	Westchester Hospital	0.0150	8.4	1.05	6.2	0.78	2.2	0.28	1.1	0.14	5.7	0.72

Table A-9.--Average Effluent Concentrations and Effluent Load for Minor Wastewater Treatment Plants, Dade County, Florida

Nitrogen and Phosphorus -- Continued

	Sewage Treatment Plant	Flow MGD	Kjeldahl Nitrogen		Ammonia Nitrogen		Organic Nitrogen		Nitrite Nitrate N		Total Phosphorus	
			Conc. mg/l	Load lbs/day	Conc. mg/l	Load lbs/day	Conc. mg/l	Load lbs/day	Conc. mg/l	Load lbs/day	Conc. mg/l	Load lbs/day
E-2	Goldberg Apartments	0.0100	19.7	1.64	16.8	1.40	2.9	0.24	19.2	1.60	11.9	0.99
E-3	Biltmore Hotel	--	0.6	--	0.2	--	0.4	--	0.05	--	0.02	--
E-4	Ludlam Plaza Apartments	0.0125	3.5	0.36	2.3	0.24	1.2	0.12	23.0	2.40	13.6	1.42
	F. Snapper Creek											
F-1	Florida Portland Cement	0.0045	2.1	0.08	0.08	0.003	2.02	0.076	9.4	0.35	5.8	0.22
F-2	Jade Gardens Apartments	--	15.1	--	14.8	--	0.3	--	0.1	--	9.0	--
F-3	Miller Lake Apartments	0.0030	22.3	0.56	20.0	0.50	2.3	0.058	0.04	0.001	12.1	0.30
F-4	Lakeview Garden Apartments	0.0300	4.8	1.20	3.1	0.78	1.7	0.42	2.2	0.55	11.2	2.80
F-5	Kendale Lakes	0.0500	1.2	0.50	0.04	--	1.16	0.05	0.78	0.30	5.1	2.10
F-6	Kendale Complex	--	8.5	--	4.98	--	--	--	0.01	--	2.3	--
	G. Black Creek											
G-1	Camp Matecumbe	0.0350	1.1	0.32	0.4	0.12	0.7	0.20	13.8	4.03	3.8	1.11
G-2	Casa Granada Apartments	0.0200	--	--	1.8	0.30	--	--	4.8	0.80	8.0	1.33
G-3	El Rancho Apartments	0.0200	2.5	0.42	1.0	0.17	1.5	0.25	16.4	2.74	3.6	0.60
G-4	Naval Air Station	--	10.0	--	9.1	--	0.9	--	0.01	--	7.1	--
	H. South Bay											
H-1	Redlands Mobile Home Park	0.0150	14.8	1.85	13.6	1.70	1.2	0.15	0.2	0.025	8.4	1.05

Table A-9.--Average Effluent Concentrations and Effluent Load for Minor Wastewater Treatment Plants, Dade County, Florida

Nitrogen and Phosphorus -- Continued

	Sewage Treatment Plant	Flow MGD	Kjeldahl Nitrogen		Ammonia Nitrogen		Organic Nitrogen		Nitrite Nitrate N		Total Phosphorus	
			Conc. mg/l	Load lbs/day	Conc. mg/l	Load lbs/day	Conc. mg/l	Load lbs/day	Conc. mg/l	Load lbs/day	Conc. mg/l	Load lbs/day
H-2	Helman Court Apartments	0.0250	14.3	2.98	6.4	1.33	7.9	1.65	4.0	0.83	7.7	1.60
H-3	Sweden House	0.0200	3.1	0.52	1.0	0.17	2.1	0.35	1.0	0.17	12.0	2.00
H-4	Steak & Brew Resturant	0.0150	2.5	0.31	1.6	0.20	0.9	0.11	<0.1	<0.01	1.4	0.18
H-[illegible]	Sea Glades Motel	--	19.5	--	18.2	--	1.3	--	0.2	--	5.0	--

Table A-10.--Average Temperature, Chlorine Residual, and Chloride Concentration for Minor Wastewater Treatment Plants in Dade County, Florida

	Sewage Treatment Plant	Flow MGD	Temperature Inf. °C	Temperature Eff. °C	Clorine Residual mg/l	Chloride Conc. mg/l
	A. Atlantic Ocean & Biscayne Bay					
A-1	Coast Guard Station	0.0144	86	82	1.0	83
A-2	Shores Condominium	0.0200	27	27	2.0	87
	B. Snake Creek					
B-i	Dade Christian Schools	0.0150	27	27	0.5	136
	C. Biscayne Canal & Little River					
C-1	Food Fair Store #291	0.0150	27	27	2.0	110
C-2	Barry College	0.0300	27	27	0.0	70
C-3	Monsignor Pace High School	0.0300	27	27	1.8	108
C-4	Del-Ray Gardens	0.0060	85	80	10+	104
C-5	Palm Springs Hospital	0.0140	80	80	10+	120
C-6	Palm Springs Garden Condominium	0.0200	26.1	24.9	5	77.2
	D. Miami River					
D-1	Winn Dixie Stores	--	27	--	--	168 in
D-2	Hialeah City Hall	0.0400	27	27	0.9	75 in
D-3	Hialeah Hospital	0.0900	34	27	2.5	108
D-4	Hialeah Convalescent Home	0.0250	27	27	1.5	79

Table A-10.--Average Temperature, Chlorine Residual, and Chloride Concentration for Minor Wastewater Treatment Plants in Dade County, Florida--Continued

	Sewage Treatment Plant	Flow MGD	Temperature		Clorine Residual mg/l	Chloride Conc. mg/l
			Inf. °C	Eff. °C		
D-5	Kings Inn	0.0200	27	27	5.0	62
D-6	Holiday Inn	0.0250	27	27	10.0	70
D-7	Airport Lanes	0.0110	27	27	5.0	54
D-8	Midway Mall	0.0600	27	27	2.0	46
D-9	Air Traffic Control	0.0090	27	27	10.0	171
D-10	Howard Johnsons	0.0250	—	—	0	119
D-11	My-Am-Ee Mobile Home Park	0.0300	27	27	10.0	54
D-12	Blue Lakes Trailer Park	0.0340	29	27	—	57
D-13	Medley Mobile Home Court	0.0030	85	80	1.5	86
D-14	Saratoga Springs Apartments	0.0130	80°F	80°F	0.1	—
D-15	Queens Inn Hotel	--	80°F	78°F	0.5	61
D-16	79th Street Shopping Center	--	80°F	80°F	<0.1	102
D-17	American Hospital Supply	0.0300	78°F	75°F	2.0	40
D-18	Miami Springs High School	0.0200	84°F	78°F	2.0	104
D-19	Country Club Garden Apartments	0.0200	82°F	78°F	2.0	58
	E. Coral Gables Waterway					
E-1	Westchester Hospital	0.0150	30	27	1.5	39

Table A-10.--Average Temperature, Chlorine Residual, and Chloride Concentration for Minor Wastewater Treatment Plants in Dade County, Florida--Continued

	Sewage Treatment Plant	Flow MGD	Temperature		Clorine Residual mg/l	Chloride Conc. mg/l
			Inf. °C	Eff. °C		
E-2	Goldberg Apartments	0.0100	88	82	0.25	67
E-3	Biltmore Hotel	--	78°F	78°F	0.1	21
E-4	Ludlam Plaza Apartments	0.0125	82	80	0	46
	F. Snapper Creek					
F-1	Florida Portland Cement	0.0045	80°F	80°F	3	103
F-2	Jade Gardens Apartments	--	85	82	0	48
F-3	Miller Lake Apartments	0.0030	86°F	80°F	0.25	71
F-4	Lakeview Garden Apartments	0.0300	85°F	80°F	0.1	43
F-5	Kendale Lakes	0.0500	75	72	0.5	28
F-6	Kendale Complex	--	75	72	2	55
	G. Black Creek					
G-1	Camp Matecumbe	0.0350	27	27	0	40
G-2	Casa Granada Apartments	0.0200	27	27	3.0	86
G-3	El Rancho Apartments	0.0200	27	27	1.5	67
G-4	Naval Air Station	--	78	78	0	318
	H. South Bay					
H-1	Redlands Mobile Home Park	0.0150	27	27	10.0	26

Table A-10.--Average Temperature, Chlorine Residual, and Chloride Concentration for Minor Wastewater Treatment Plants in Dade County, Florida--Continued

	Sewage Treatment Plant	Flow MGD	Temperature		Clorine Residual mg/l	Chloride Conc. mg/l
			Inf. °C	Eff. °C		
H-2	Helman Court Apartments	0.0250	27	27	0.0	43
H-3	Sweden House	0.0200	28	27	0.15	138
H-4	Steak & Brew Resturant	0.0150	27	27	3.0	110
H-5	Sea Glades Motel	--	80	80	1.5	139

APPENDIX 11

RULE 7

REGULATION OF THE USE OF SANITARY AND STORM SEWERS AND THE DISCHARGE OF WATERS AND WASTES INTO UTILITIES' SEWERAGE SYSTEMS.

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REGULATION OF THE USE OF SANITARY AND STORM SEWERS AND THE DISCHARGE OF WATERS AND WASTES INTO UTILITIES' SEWERAGE SYSTEMS

APPROVED AND EFFECTIVE JUNE 20, 1966, BY RESOLUTION NO. R-606-66 OF THE BOARD OF COUNTY COMMISSIONERS OF DADE COUNTY, FLORIDA.

RULE 7

Regulating the use of sanitary and storm sewers and the discharge of waters and wastes into utilities sewerage systems, and providing penalties.

SECTION 1: Unless the context specifically indicates otherwise, the meaning of terms used in this rule shall be as follows:

(a) "Sewage Works" is a comprehensive term which includes facilities for collecting, pumping, treating and disposing of sewage.

(b) "Sewage" shall mean a combination of the water carried wastes from dwellings, business buildings, institutions, and industrial establishments. In effect it is the water supply of a community after it has been used and discharged into a sewer.

(c) "Sanitary Sewer" shall mean a sewer which carries sewage and to which storm, surface and ground waters are not intentionally admitted.

(d) "Storm Sewer" shall mean a sewer which carries storm and surface waters and drainage, but excludes sewage and polluted industrial wastes.

(e) "Industrial Wastes" shall mean the liquid wastes from industrial processes as distinct from sanitary sewage.

(f) "Garbage" shall mean solid wastes from the preparation, cooking and dispensing of food and from the handling, storage and sale of produce.

(g) "B.O.D." (denoting Biochemical Oxygen Demand) shall mean the quantity of oxygen utilized in the biochemical oxidation of

organic matter under standard laboratory procedure in 5 days at 20 degrees Centigrade, expressed in parts per million.

(h) "pH" shall mean the logarithm of the reciprocal of the weight of hydrogen ions in grams per liter of solution.

(i) "Suspended Solids" shall mean solids that either float on the surface of, or are in suspension in water, sewage or other liquids and which are largely removeable by laboratory filtering.

(j) "Person" shall mean any individual, firm, company, association, society, corporation or group.

(k) "P.P.M." shall mean parts per million by weight.

SECTION 2: Prohibited Wastes.

(a) No person shall discharge or cause to be discharged any storm water, surface water, ground water, roof runoff, subsurface drainage, cooling water or unpolluted industrial or commercial process water into any sanitary sewer.

(b) The discharge of cooling water from air conditioning units is prohibited. Cooling water free from bacteria and harmful chemicals should be discharged into storm water sewers. Except as hereinafter provided, no person shall discharge or cause to be discharged any of the following described wastes or waters to any public sewer:

1. Any liquid having a temperature higher than 150 degrees Fahrenheit.

2. Any water or waste containing more than 100 p.p.m. or exceed a daily average of 25 p.p.m. of any grease or oil or any oily substance.

3. Any gasoline, benzene, naptha, fuel oil or other flammable or explosive liquid, solid or gas.

4. Any waters or wastes containing a toxic or poisonous substance in sufficient quantity to injure or interfere with any sewage treatment process, constitute a hazard to humans or animals, or create any hazard in the receiving waters of the sewage treatment plant.

5. Any garbage that has not been properly shredded, which shall mean the wastes from the preparation, cooking and dispensing of food that have been shredded to such degree that all particles will be carried freely under the flow conditions normally prevailing in public sewers, with no particle size greater than 1/2 inch in any dimension.

6. Any waters or wastes having a pH lower than 5.5 or higher than 9.5 or having any other corrosive property capable of causing damage or hazard to structures, equipment or personnel of the sewage works.

7. Any water or waste containing toxic substances in quantities in excess of the following limits and measured at the point of discharge into the sewer system:

Cyanides - - - - - - - -	0.01 p.p.m.
Copper, total - - - -	0.5 p.p.m.
Chromium, hexavalent -	0.5 p.p.m.
Chromium, total - - -	1.0 p.p.m.
Cadmium - - - - - - - -	0.5 p.p.m.
Zinc, total - - - - - -	1.0 p.p.m.

Or any substance that will pass through the sewage treatment plant and exceed the state requirements for the receiving stream.

8. Any water or waste containing phenols in excess of 0.005 p.p.m.

9. Any water or waste containing suspended solids or color of such character and quantity that unusual attention or expense is required to handle such materials at the sewage treatment plant, without a special permit.

10. Any toxic radioactive isotopes, without a special permit.

No statement contained in this section shall be construed as prohibiting any special agreement or arrangement, between the utility and any person whereby an industrial waste of unusual strength or character may be admitted into the sanitary sewers for treatment by the utility either before or after pretreatment.

SECTION 3: Admission of Industrial Waste.

(a) Treatment of Industrial Wastes - The economy and desireability of the combined treatment of industrial wastes and sanitary sewage is recognized. However, not all types and quantities of industrial wastes can be so treated. Hence, it shall be the established policy to admit these types and quantities of industrial wastes that are not harmful or damaging to the structures, processes or operation of the sewage works or are not specifically prohibited by this rule.

It is also recognized that to provide this service additional facilities are required and the cost of which must be borne by those persons receiving its benefits.

(b) Approval Required for Industrial Wastes- In order to control the admission of industrial wastes, the discharge into the public sewers of any waters or wastes having:

1. A five day 20 degree Centigrade B.O.D. greater than 300 p.p.m. or

2. A suspended solids content greater than 350 p.p.m., or

3. A chlorine demand greater than 15 p.p.m., or

4. An average daily flow greater than 2% of the average daily sewage flow at the sewage treatment works, or

5. Any toxic substance, or

6. Any wastes which are considered by the Superintendent of the Sewage Treatment Works to offer possibilities or harm to structures, processes, or operation of the plant.

shall be subject to review and approval of the utility.

(c) Sewerage Systems Connected to an Ocean Outfall - When industrial wastes are discharged to a sewerage system utilizing an ocean outfall, items 1 through 3, Section 3(b) shall not be applicable unless it is being

treated by a sewage treatment plant where the loading of the biological treatment unit would be a factor.

(d) Survey Data Required - All users of the sewage system who are now discharging industrial wastes to the public sewers shall upon request of the sewage treatment plant Superintendent, fill in and file with the plant superintendent, within three months, a questionnaire — which shall furnish pertinent data, inclusive of quantity of flow and an analysis of the water discharged to the sewage treatment plant.

Similarly any person desiring to make a new connection to the sewage system for the purpose of discharging industrial wastes to the public sewers, shall fill in and file with the sewage treatment plant superintendent an industrial waste questionnaire which shall furnish pertinent or predicted data inclusive of quantity of flow and an analysis of the industrial waste to be discharged into the sewer system.

(e) Sampling and Analysis - Samples shall be a composite sample collected daily over a three day period of operation so as to be a truly representative sample of the actual quality of the wastes. Sample, for analysis, must be collected by the engineer, chemist or his representative. Analysis shall be made by a registered Sanitary Engineer, or a graduate Chemist whose qualifications are acceptable to the Health Department, or Class A & B waste water treatment plant operator,

registered in Florida, using the laboratory methods for the examination of industrial waste as set forth in the latest edition of "Standard Methods for Examination of Water and Sewage" as published by the American Public Health Service.

(f) Extension of Time - When, due to the size or complexity of the waste disposal problem of an industry, it can be shown that it is impractical to meet the schedule imposed under Section 3(c) above, a request for an extension of time may be presented to the plant superintendent.

(g) Control Manhole - Any establishment discharging industrial wastes into the sewage system shall construct and maintain at his expense a suitable control manhole, or manholes downstream from any treatment, storage or other approved works, to facilitate observation, measurement and sampling of all wastes, including domestic sewage, from the establishment.

The control manhole or manholes shall be constructed at suitable and satisfactory locations and built in a manner approved by the Sewage Treatment Plant superintendent.

The control manhole shall be accessable to the Sewage Treatment Plant superintendent or his representatives at all times for sampling.

(h) Pretreatment - When required, the user of the utility sewer system shall provide at his expense such preliminary treatment or handling as may be necessary to modify the objectionable characteristics, or constituents to come within the limits set forth in Section 3(b) of this rule.

SECTION 4: The Sewage Treatment Plant Superintendent and other duly authorized employees of the utility bearing proper credentials and identification shall be permitted to enter upon all properties for the purposes of inspection, observation, measurement, sampling and testing in accordance with the provisions of this rule.